

ENVIRONMENTAL ASSESSMENT
FOR
DEMOLITION OF THE GOLDEN EAGLE REFINERY
CARSON, CA

PREPARED FOR
THE CITY OF CARSON

MARCH, 1985

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SUMMARY

This Environmental Assessment describes the Golden Eagle Refinery, which was built in 1945, the existing environmental quality of the site and the steps necessary for the demolition of the refinery and conversion of the site for future use.

Over the years the refinery has produced a variety of petroleum products, and oil farming was practiced on about 20 acres of the site. Also, on a 10 acre portion of the site, a separate company operated a landfill for two years (1961-1962).

Extensive testing has been done on the site over the last 10 years. These tests include: (1) borings and methane gas measurements in the landfill area; (2) chemical testing of storm water runoff; (3) borings and test pits throughout the site; (4) drilling and testing of a water monitoring well; and (5) hydrocarbon analysis of soil samples. Results of this testing indicate that: (1) methane gas is being generated in the landfill, but migration of the gas is quite limited; (2) there are no significant concentrations of priority pollutants in the groundwater; and (3) storm water runoff and soil sample hydrocarbon analyses show that surface and subsurface hydrocarbon contamination is limited.

Two steps are necessary for the conversion of the site for future use.

Phase I

- Demolition of all surficial structures with controlled removal and handling of asbestos insulated equipment, transformers containing PCB's and tank bottom and separator sludges.

Phase II

- Completion of the site characterization study to insure that the level of impacts is as already determined.
- Agreement of concerned agencies on the mitigations necessary for future development on the site.
- Implementation of any necessary site mitigations or incorporation of same as a condition of subsequent development of the property.

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I. PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

The Golden Eagle Refinery Company, Inc. is located at 21000 S. Figueroa Street, Carson, California. The refinery is ceasing operations, and it is the intent of GER to demolish the refinery and to identify and carry out actions necessary to prepare the site for future development of an industrial park or other appropriate land use.

The purpose of this document is to describe the proposed plan of action, the structures to be removed, and the potential impacts and mitigation actions to be taken during demolition events. The actions to be taken are based on an analysis of existing equipment and on-site characterization completed as of this time. A plan is provided for further site characterization and potential mitigation actions are described for conversion of the site to another use.

This Environmental Assessment is intended to address the concerns of:

The City of Carson (City)

The California Department of Health Services (DOHS)

The Regional Water Quality Control Board (RWQCB)

The South Coast Air Quality Management District (SCAQMD)

The County of Los Angeles (County)

The Occupational Safety and Health Administration (OSHA)

II. GENERAL NATURE OF PLANNED ACTIONS

The initial action to be taken (Phase I) is the demolition and removal of all surficial structures on the GER site (Site). This action is deemed to be very critical since the refinery no longer is being operated 24 hours per day, and the opportunity for individuals to enter the Site is greater than in the past. The present security service cannot provide the same vigilance as a full refinery crew working around the clock.

Phase I will consist of routine demolition procedures. However, there will be certain problematic activities associated with some of the demolition, such as the removal of asbestos insulated equipment, including towers, heat exchangers, steamlines and two storage tanks. Additionally, the removal of old electrical transformers will be necessary.

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These have been on the site for approximately 40 years and possibly contain PCB's. Finally, any hazardous sludges will be removed. Once this demolition of surficial structures is completed, the safety of the site will be enhanced.

The next major phase (Phase II) in the site restoration process will be a further site characterization study. This study, in combination with previous studies, will identify any potential environmental hazards as yet undetermined and describe essential surface and subsurface demolition and mitigation actions, such as on-site treatment, removal of subsurface equipment, and proper disposal of any wastes.

After completion of the Site Characterization Study, applications, letters, etc., requesting approval for Phase II demolition will be filed with the City, DOHS, RWQCB, and SCAQMD. If GER does not desire to implement final Site restoration mitigations, the City of Carson will specify the mitigations necessary for Site restoration and they will be incorporated in any approvals for development on the site.

III. PROJECT AREA - GENERAL VICINITY AND SITE DESCRIPTION

A. Vicinity Setting

The GER Site is located at the western edge of the City of Carson, just east of the Harbor Freeway and about one mile south of the junction of the Harbor Freeway with the San Diego Freeway (See Figure 1). The Site is bounded on the north by Torrance Blvd., on the east by Main St., on the south by 212th St. and residential property, and on the west by Figueroa St. With the exception of the residential property south of the Site, all the bordering land is zoned for light industry. Several historical landfills exist in the vicinity of the Site and these are addressed in subsequent sections of this document.

B. Site Setting and Description

GER is situated on about 76 acres currently zoned for heavy industry. Figure 2, a recent aerial photograph of the Site, and Figure 3 show major structures, elevations, depth of fill, and some historical and recent uses of the site. A tank farm occupies much of the northern part of the site, except approximately 10 acres in the northeast portion which is the location of the landfill operated in the early 1960's. The crude processing area, office, lab and associated buildings and a smaller tank farm are located just south of the large tank farm. Some of the southern portion of the site has been used for "farming" of oily tank bottom waste, i.e., the sludge was spread on the ground and allowed to dry, then disced into the soil.

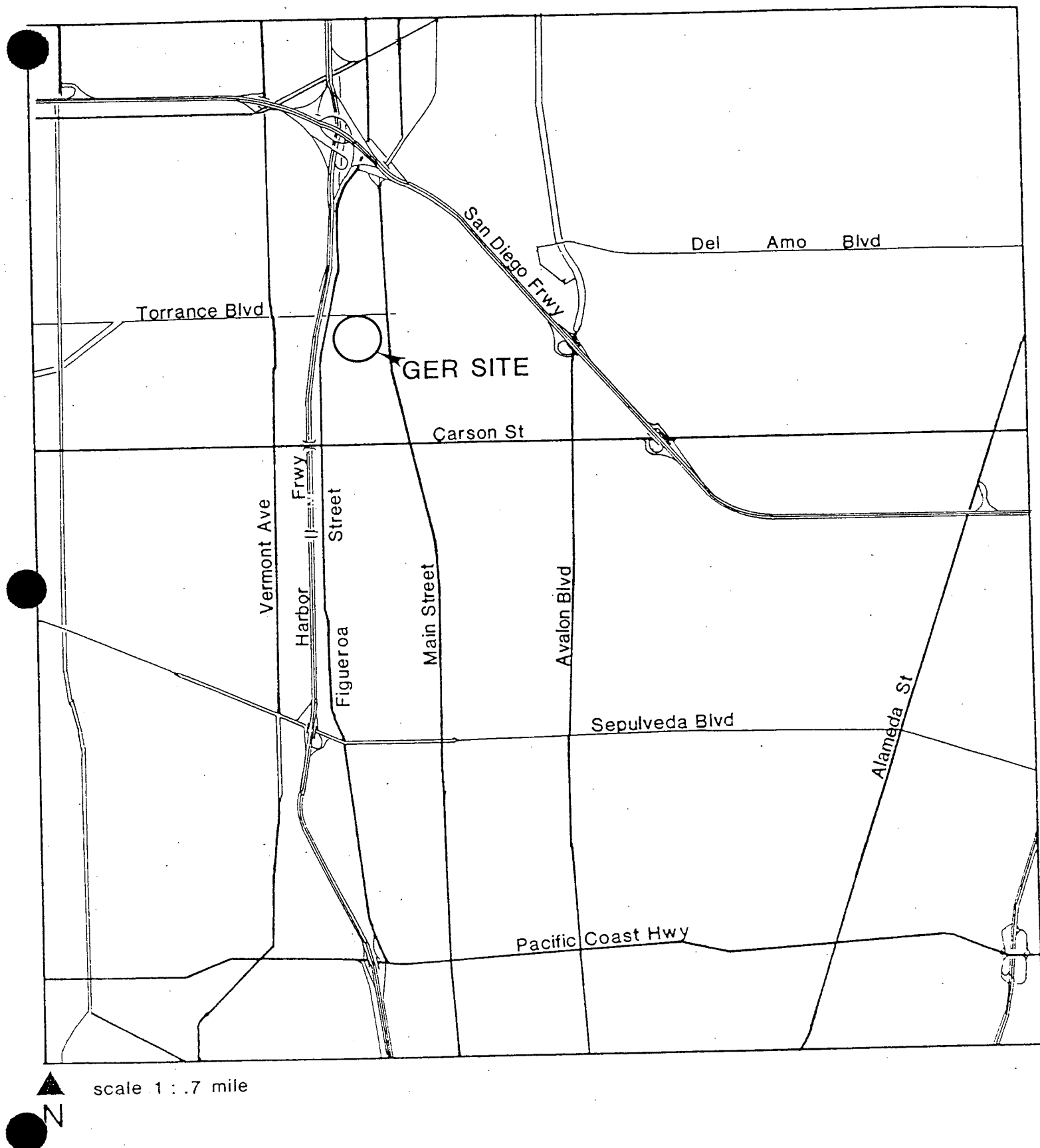


Figure 1. General Vicinity Of the Golden Eagle Refinery.

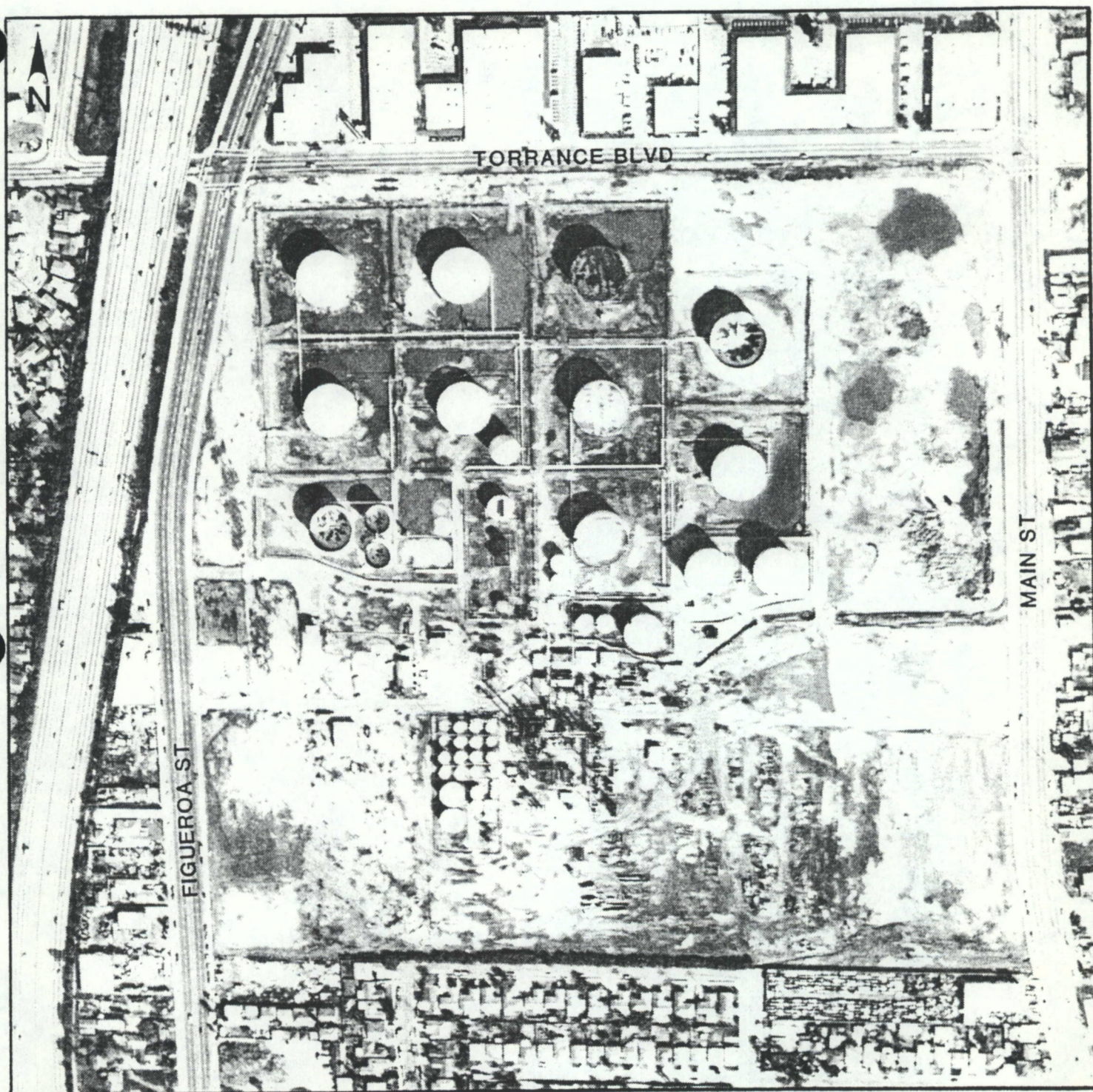


Figure 2. Aerial Photograph of the Golden Eagle Refinery (January, 1985).

The western and central parts of the southern edge were the primary locations for this activity (See Figure 3). The southeastern corner of the Site, although used for oil farming, primarily has been used for equipment storage.

IV. HISTORY OF THE GER SITE

Several activities have been conducted on the GER site. The initial petroleum activity was the construction of a tank farm in 1922. The Douglas refinery, north of the Site on Torrance Blvd. utilized this tank farm for a short time in the 1930's and/or 1940's. The present refinery operations, and related construction, began in 1945. The on-site landfill operation was conducted by an unrelated company in 1961 and 1962.

A. The Original Tank Farm

The original tank farm was constructed in 1922 by the Julian Petroleum Company. This farm consisted of 13 of the tanks that currently are on the GER site. The tank farm was operated by a succession of oil companies for storage of petroleum products, including Sunset Oil which started building the current refinery in 1945.

B. The Douglas Refinery

The Douglas Refinery was built on Torrance Blvd. to the north of the GER Site on land leased from Sunset Oil Company. The precise time of construction and decommissioning are unknown, but an aerial photograph (See Figure 4) shows the refinery in place in 1941. It is known that the refinery was dismantled and shipped to Russia prior to 1945. This refinery utilized the tank farm on the current GER site for crude and product storage.

C. History of Present Refinery

The present refinery, excluding the existing tank farm, was constructed by Sunset Oil in 1945. The first installation was the Number 1 crude unit, a flash column, fractionation column and ancillary equipment. An additional, identical unit was added in 1948. Each of these units, with a production capacity of 4,000 barrels (bbl) per day, produced kerosene, fuel oil and gasoline. In 1953, a thermal cracking unit was added for increased production of gasoline, but this unit was taken out of service in 1961/1962 and slowly was dismantled over the years. In 1958 the refinery was purchased by the Golden Eagle Company. The production of leaded gasoline ceased in 1965, but the tetraethyl lead tank remained in place. In 1965, the refinery began producing aviation fuel.

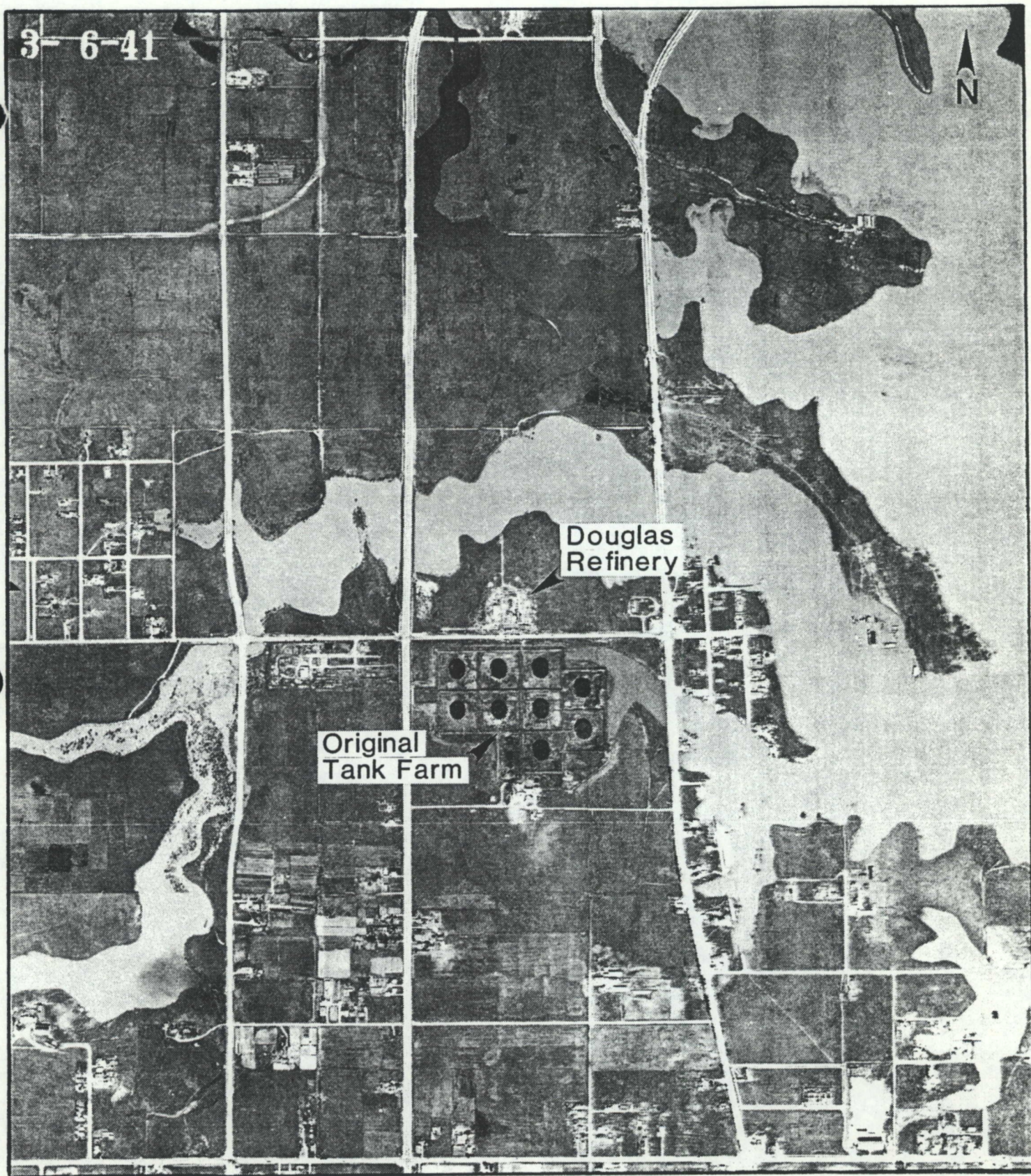


Figure 4. Aerial Photograph of the Golden Eagle Refinery Vicinity (1941).

In 1980 a third crude processing unit, with a capacity of 8,500 bbl per day, was added. The three crude processing units in combination with a naphtha stabilizer unit and the number 4 rerun unit produced JP-4 and JP-5 aviation fuel, fuel oil and diesel fuel until the refinery stopped refining crude oil on November 22, 1984.

Primary transport of crude and product into and out of the refinery was by a system of pipelines connecting the refinery with oil fields, terminals at the Port of Los Angeles and other refineries. Additionally, there is a loading rack on the Site which was used for the occasional transport of product by tank truck.

Until about 1970 tank bottom sludges were disposed of on the southern portion of the Site by oil farming (See Figure 3). These sludges consisted of mixtures of petroleum, water, sand and other sediments. In this process, the sludges are spread on the ground and then allowed to dry. The dried material is then disced into the soil where naturally occurring bacteria break down the hydrocarbons into simpler by-products. This practice has been the primary disposal of refinery wastes on the site according to the GER manager who has worked there nearly 40 years. He estimates that an average of about 2,000 bbl per year were disposed of in this manner from about 1946 to 1970. A small amount of tank bottom waste also was sprayed on earthen fire walls around the tanks.

Refinery wastewater was disposed of on-site for a brief period. Wastewater was treated via an API type separator and then discharged into a slough in the northeast corner of the Site, the area subsequently excavated prior to the landfill operation. According to the GER manager, this slough was approximately 10' deep with a bottom elevation of about 10' above sea level, and it occasionally overflowed and drained into the unimproved Dominguez Channel (although the current on-site drainage channel was not in place at that time.) The 1941 aerial photograph (See Figure 4), taken during an apparent flood, shows this depression. This practice continued until approximately 1950, when the refinery was required to discharge treated wastewater into the county sewer system.

In addition to these periods of intentional on-site disposal, there were occasional, infrequent, leaks and tank spillages associated with normal operation of the refinery. These were considered to be "anticipated" for a refinery of this size, as noted by a December 17, 1980 DOHS memorandum to file which states that "the general appearance of the site was very clean and no other problems [other than those mentioned above] were indicated in other agency files."

D. History of Landfill Operation

The landfill operation covered about 10 acres on the northeastern portion of the Site (See Figures 3 and 5). The operation commenced in late 1961 with the formation of a borrow pit, apparently excavated to provide fill for construction of the nearby Harbor Freeway which was being built at that time. The landfill, known as Gardena Valley Dump No. 5, was operated by the Berada Corporation, which had several other dumps in the immediate area.

The operating permit, granted in the face of considerable local public opposition, specified that the dump be operated as a public dump. It was to accept not more than 2% by volume, 5% by weight of garbage in any load of refuse. It is presumed that the dump may have accepted small quantities of some liquid wastes because dumps in the area were permitted to accept limited semi-liquid wastes, not to exceed 10 gallons per cubic yard of solid refuse. However, the operating permit for the Gardena Valley Dump No. 5 specifically states that only solid fill operations were to take place within 50 feet of the northern and eastern property boundaries.

Records indicate that the borrow pit was filled and landfill operations ceased in late 1962. The current on-site drainage channel was installed as part of the landfill operations in order to comply with drainage requirements.

A study done on the landfill area (Leroy Crandall and Associates, 1975) indicates that the depth of the landfill material ranges to approximately 38', with an average soil cover 2'-5' thick, and the northwestern portion of the fill consists of inert solids, such as, concrete and asphalt. Further, this report states that the main body of the landfill consists of organic wastes which generate methane gas. The natural soils around the landfill are relatively impermeable and constitute a natural barrier to gas migration.

A report by Pacific Soils Engineering (1984) states that the area south of the drainage channel was used to stockpile fill dirt for removal or for landfill cover, and some of this fill remains to this day. This report also states that storage tanks 55004 and 55005 are constructed on dirt fill material. The refinery manager reports that he also stockpiled fill dirt in the area south of the landfill for potential use on the GER site. The remaining portions of the site primarily are native soils.

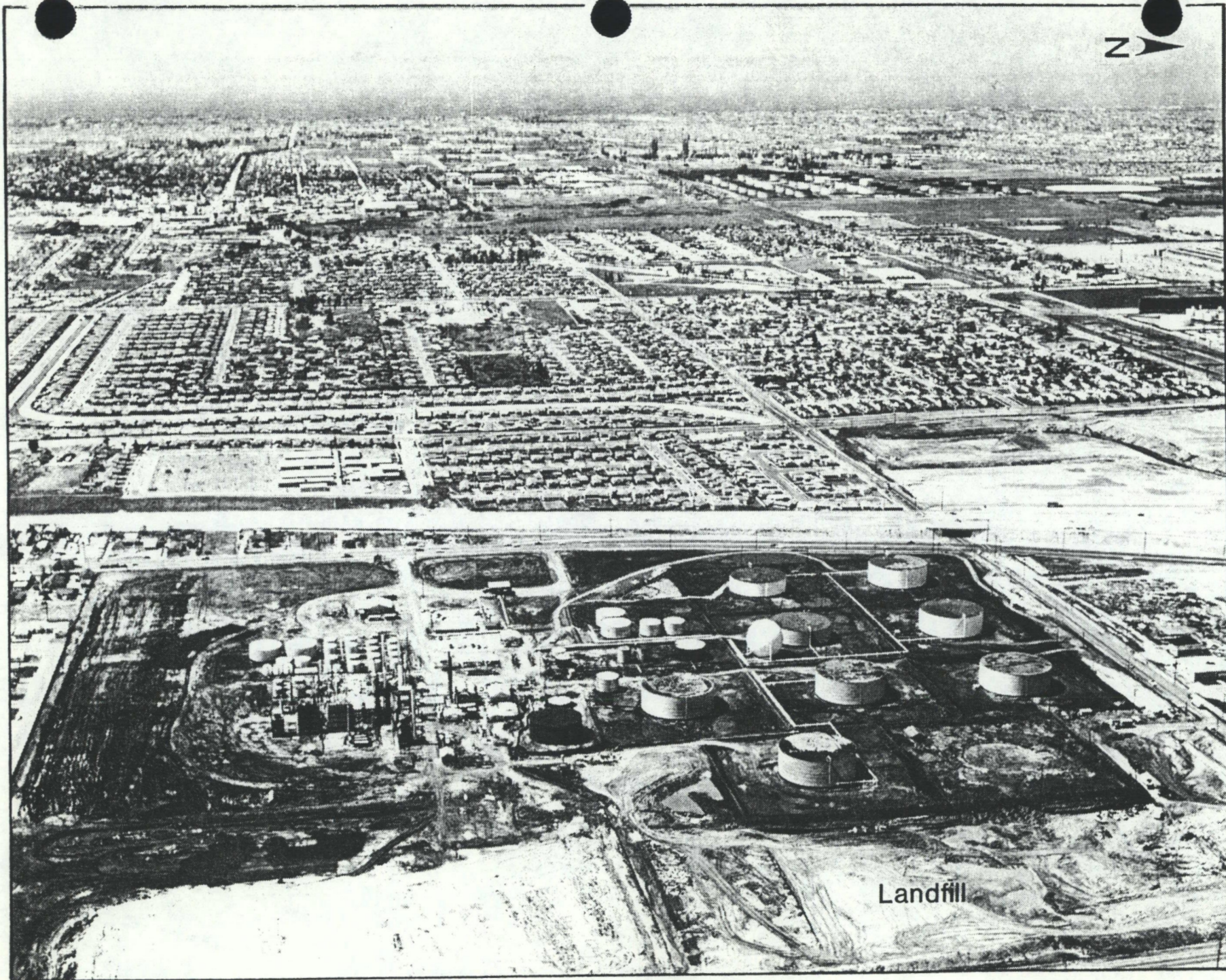


Figure 5. Aerial Photograph of the Golden Eagle Refinery
Showing the Landfill Operation (March, 1962).

V. HISTORICAL OVERVIEW OF ADJACENT LAND USES

There are several historical developments in the GER vicinity which affected the GER Site. These include the construction of the Dominguez Channel and associated storm drains, and the construction of freeways in the area which led to the excavation of on-site borrow pits, one of which was used for a landfill. Other landfills in the immediate vicinity potentially may have affected the Site indirectly via the contamination of ground water.

A. The Dominguez Channel

The Dominguez Channel section in the area of the GER site was constructed in 1964 to help prevent flooding of the region. The storm drains connecting Torrance Blvd. and Main St. to the channel were constructed in 1969. Thus, the depression in the landfill area remained a slough until this area was excavated as a borrow pit in 1962.

B. Landfills in the Vicinity of the GER SITE

Historically the area around the GER has been extensively used for landfilling activities for two primary reasons: first, many borrow pits were formed, for freeway construction, etc., in the late 1950's and early 1960's, and these excavated pits were then used for landfills, both for general public and industrial use; and second, this land use was permitted because of the general industrial nature of the region. Several current and historical landfills exist in the area of the Site, as shown in Figure 6.

Several of the historical landfills are located adjacent to or in the immediate vicinity of the GER Site, as shown in Figure 7. One of these is the Cal Compact Landfill which is on the Priority Ranking of Hazardous Waste Sites in California list. Many of these landfills predate the operation of the on-site Gardena Valley Dump No. 5, and may have operated under less stringent conditions than did the landfill on the GER site.

VI. GENERAL GEOLOGY

A. Physical Setting

The GER is located in the southwestern block of the Los Angeles Basin which is the exposed part of a much larger tract, most of which is beneath the Pacific Ocean. This southwestern block is roughly rectangular and is about 28 miles long from northwest to southeast and 5 to 12 miles wide. Most of it is a low plain which extends from Santa

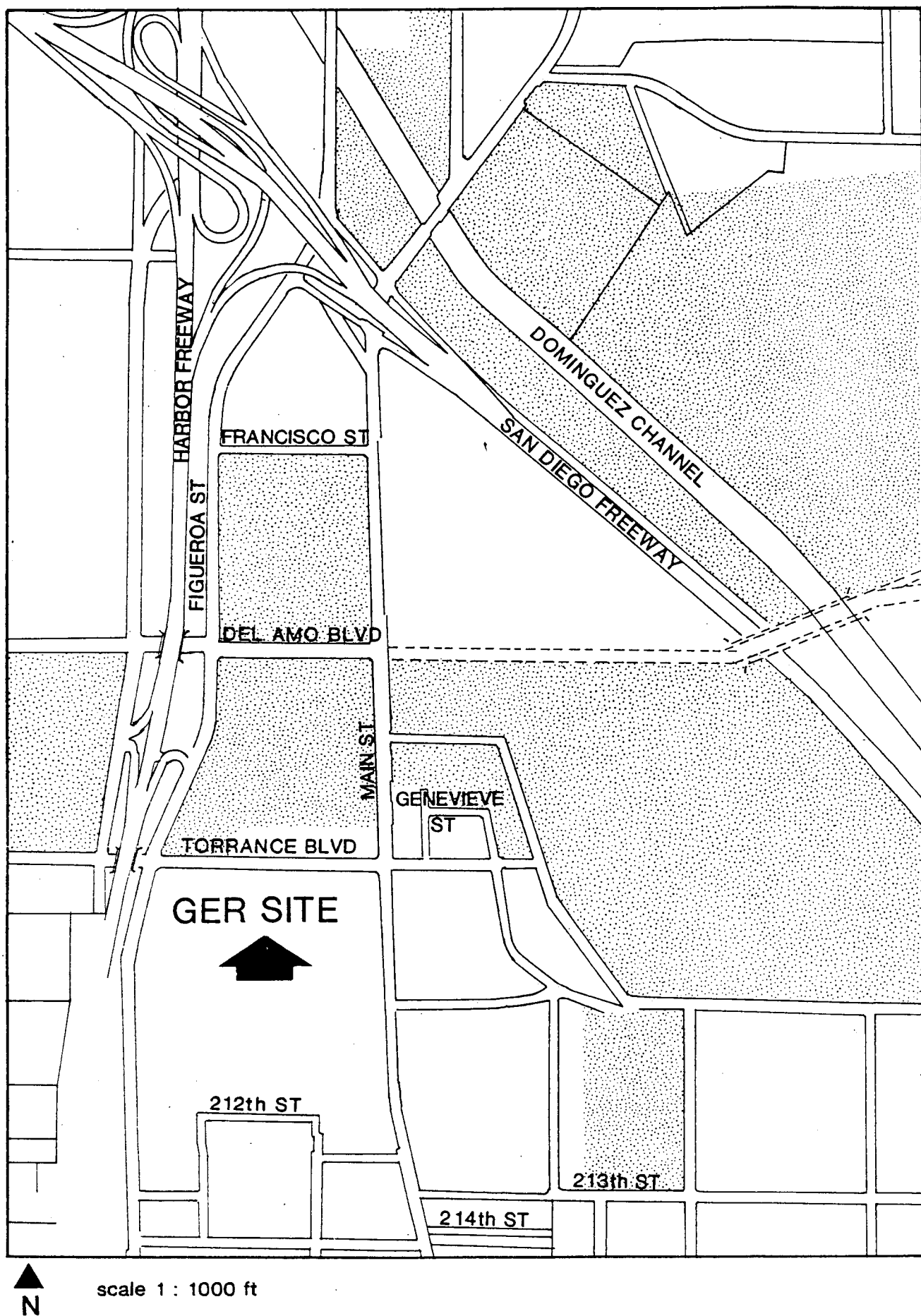


Figure 7. Shading Indicates the Locations of Historic Landfills in the Immediate Vicinity of the Golden Eagle Refinery.

Monica at the northwest to Long Beach at the southeast. The Palos Verdes Hills, which rise to an altitude of about 1,300' at the southwest extremity of the plain, are the most prominent topographic feature of the block; a line of elongated low hills and mesas extends from northwest to southeast along the inland margin of the plain.

B. Stratigraphy

The upper fresh water-bearing zones and near-surface sediments include the San Pedro Formation of the Lower and Middle Pleistocene Age, the Palos Verdes Formation and unnamed Upper Pleistocene Formation, and Holocene River Channel deposits.

The San Pedro Formation is comprised of both upper and lower units, made distinct by their texture or grain size. These units are separated by a clayey silt. A sand and gravel lens forms the Lower Silverado aquifer while fine to medium-grained sands comprise the Upper Silverado aquifer. The two aquifers are separated by the clayey silt to the south of Pacific Coast Highway but to the north, the clayey silt is intermittent or completely absent. A uniform layer of gravelly sand covers the area and is known as the "400-foot" aquifer. This "400-foot" aquifer is covered with a fine sand and clayey silt.

The Upper Pleistocene Formation consists mainly of interbedded sands and clayey silts. Three sand and gravel zones exist and are separated hydraulically by sandy to clayey silts. A fourth sand and gravel zone occurs locally in some areas. The zone which is located second from the bottom is most widespread and is referred to as the "200-foot" sand. The two upper zones are finer grained than the lower ones, consisting of medium to coarse-grained sand between 10'-50' thick. These two zones are reported to be hydraulically continuous near Pacific Coast Highway and the Dominguez Channel. The upper 50'-70' of the Upper Pleistocene is referred to as the Palos Verdes Formation. This zone is the uppermost aquifer in the area, the Gage aquifer. The top of the Upper Pleistocene Formation consists of interbedded silts and sands that form the ground surface of the Torrance and Long Beach plains of the southwestern block of the Los Angeles Basin.

An extreme drop in sea level followed the end of the formation of the Upper Pleistocene resulting in the erosional incision of the ancestral Los Angeles River. The Dominguez Gap was formed through the Newport-Inglewood zone of deformation and a north-south river channel as deep as 180 feet was created between the Torrance and Long Beach plains. The river began backfilling with river gravels and sand when the sea levels began to rise. The Gaspar aquifer

is comprised of gravels and sand in the basal 70'-100' of the channel. The flood plain was widened beyond the limits of the Gaspar channel through the meandering of the Los Angeles River. The Gaspar channel lies to the east of the GER site. The Gaspar aquifer is reported to be in hydraulic continuity with the Upper Pleistocene "200-foot" sand.

C. Structural Geology

The Newport-Inglewood structural zone, the Wilmington anticline and the Richfield fault are the major geologic structures in the vicinity of the GER site. A series of anticlinal folds and echelon faults, the Newport-Inglewood structural zone extends for 45 miles from the Santa Monica Mountains to Newport Beach. A series of hills and structural depressions that involve the Upper Pleistocene and older sediments have been created by the folding along the entire length of the Newport-Inglewood zone.

Local barriers to ground water movement through most of the aquifers have been created by the faulting along the Newport-Inglewood zone of deformation. The effects on ground water levels are not consistent along the entire zone. Ground water movement is not impeded within the Gaspar aquifer at the Dominguez Gap but faulting does affect the older aquifers.

D. General Hydrology

The Recent aquifers in the basin consist of the coarse clean gravels and sands of the Gaspar (50'-75' thick) zone and the coarse gravels of the "50-foot" gravel (10'-40' thick) zone. Both these aquifers do not extend to the Golden Eagle site; the ancestral San Gabriel and Los Angeles Rivers deposited the aquifer sediments in a narrow transect about one mile in width at the eastern salient of Dominguez Hill. By 1959, these aquifers were largely dewatered and contaminated with saline waters.

The Upper Pleistocene deposits include the marine Palos Verdes Formation which has little importance as an aquifer and the "200-foot" sand, which is very productive. This zone of shallow marine origin consists mostly of coarse sand along with some gravel, silt and clay. In the Torrance-Carson area, the "200-foot" sand/Gage Aquifer is largely in physical and hydraulic continuity with the thick series of coarse-grained sediments of the underlying San Pedro Formation. But in the Golden Eagle area, the Gage Aquifer averages 150' in thickness. About 45' of clay separates it from the underlying "400-foot" gravel Lynwood Aquifer of the San Pedro Formation.

The Lynwood Aquifer gravel forms the upper zone along a 10 mile long southeast-trending syncline axis from Inglewood to three miles past Gardena. This aquifer is about two miles wide and consists of fine sand and gravel 50 feet thick underlain by 50'-180' of impermeable silt and clay. Thus this aquifer is physically and hydraulically separated from the Gage and Silverado Aquifers. This entirely confined aquifer does not crop out; thus, under natural conditions, the little recharge it receives occurs chiefly through its marginal contact with the Silverado zone, which crops out at the base of the Palos Verdes Hills. See Figure 8 for a section which depicts the ground water geology in the area.

VII. SITE SPECIFIC GEOLOGY

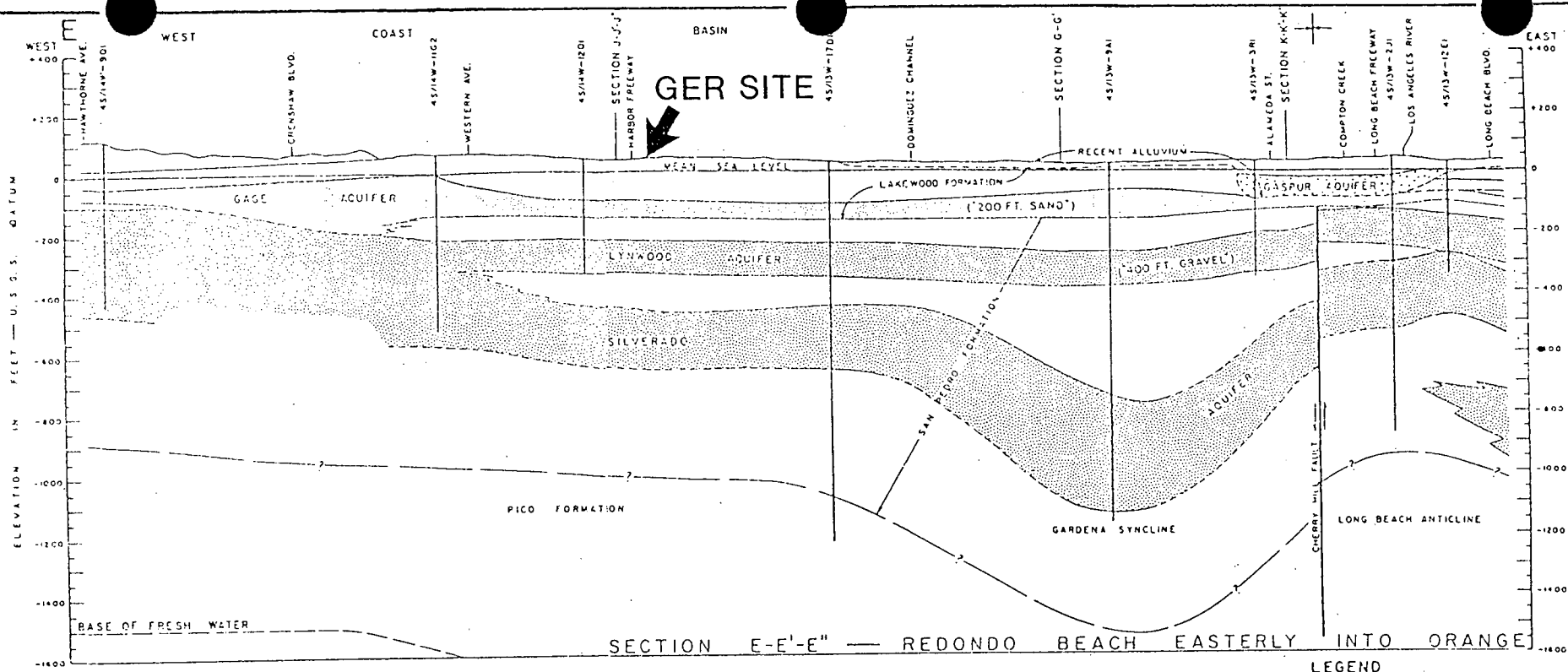
A. Soils

The natural surface soil at the GER site, where undisturbed, is comprised of 2'-4' of dark to very dark brown clay which generally has a moderate to high moisture content. This layer of clay is underlain by various thicknesses of clayey and/or sandy silt. In most areas, the clayey and sandy silts alternate in bands which vary in thickness from 2'-8'. Clayey silt is found in greater abundance, however, below 10'. See Appendix A for boring and test pit logs, Pacific Soils Engineering, November, 1984.

Materials exposed at the ground surface are part of the Lakewood formation of the Upper Pleistocene Age. The refinery site is underlain by about 1,200' of Pleistocene semi-consolidated deposits of sand, silt, gravel and clay. A relatively thick layer of Tertiary sedimentary rocks that include sandstones, siltstones, conglomerates and shales is located beneath the Pleistocene materials. These rocks extend to a depth in excess of 10,000'. Beneath the sedimentary rocks lies the Mesozoic or older Catalina schist, which is considered to be the basement complex rock of the area.

B. Hydrology

In the vicinity of the GER site, the Silverado zone ranges from 200'-300' in thickness and consists of coarse sand and gravel interbedded with 20'-30' thick layers of impervious silt, sandy clay or clay. Thus, this zone represents beach and shallow marine sediments deposited seaward from coastal deltas reworked by strong longshore currents. Silverado water in this area differs from typical Silverado water to the north and to the northeast.



- LEGEND
- AQUICLIDES AND DEEPER UNDIFFERENTIATED FORMATIONS
 - AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
 - AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
 - AQUIFERS IN SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO, AND SUNNYSIDE AQUIFERS)

- WATER WELLS
- OIL WELLS
- FAULTS

NOTE: LOCATIONS OF GEOLOGIC SECTIONS ARE SHOWN ON PLATE 3A AND 3B

SOURCE: "Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County," State of California, 1960.

Figure 8. Section Through the Area of the Golden Eagle Refinery Site, Depicting Ground Water Geology

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE
COASTAL PLAIN OF
LOS ANGELES COUNTY

IDEALIZED GEOLOGIC SECTIONS
E-E'-E'' AND F-F'-F''
1960

HORIZONTAL SCALE OF FEET
2000 0 2000 4000 6000

The Gage Aquifer is the shallow aquifer found in the area of the GER (See Figures 8 and 9). Also known as the "200-foot" sand, the Gage Aquifer is about 150' thick in the area of the refinery. It is in continuity with the coarse-grained sediments of the San Pedro Formation which underlie it. About 45' of clay separates it from the Lynwood Aquifer ("400-foot" gravel) of the San Pedro Formation. The Gage Aquifer is formed from deposits of the Upper Pleistocene.

Since 1964, ground water levels have fluctuated around the -70' mark; October water table levels are usually 1'-2' greater than those measured in April. Historically, ground water levels in the vicinity were at an elevation of about 20' above sea level. Future ground water levels can be anticipated to remain relatively constant at elevations below sea level as a result of operation of the nearby Los Angeles County Flood Control District Sea Water Intrusion Barrier projects at Redondo Beach and in the Dominguez Gap. A boring drilled on the northwest portion of the GER site in September of 1975 encountered water at a depth of 68.5'. A ground water monitoring well drilled on the westerly portion of the GER site in November of 1984 encountered water at a depth of 62' which may be perched or semi-perched ground water.

For the Silverado Aquifer, ground water flows northeast from the Carson-Harbor Freeway interchange and curves east towards the Carson "sink" southeast of the Dominguez Hills. The flow originates from the fresh water injection (as the West Coast Barrier) in the Redondo Beach area and spreads northeastward from east-trending flow north of the Palos Verdes Hills.

The ground water of the shallow Gage Aquifer flows in a southeasterly direction near the site, as indicated by the shallow aquifer water levels shown in Figure 9. Movement of perched ground water on top of this aquifer may or may not be influenced by the underlying aquifer gradient.

C. Faults and Seismicity

Regional geologic mapping does not indicate the presence of any faults on or near the Golden Eagle site. The historic seismic record indicates that epicenters of earthquakes with magnitudes up to 6.3 have occurred within about 26 miles of the Golden Eagle site. Given the location of the site relative to known active faults, it is not exposed to greater than normal risk for the Los Angeles County Coastal Plain.



D. Subsidence

The refinery is not located within the limits of production of any known oil field so, while subsidence has been known to occur in the Los Angeles Basin, there is no evidence that it has occurred on the Golden Eagle site.

VIII. ENVIRONMENTAL QUALITY TESTING

In the last 10 years a significant amount of environmental quality testing has been conducted on the GER Site (See Figure 10). Chemical testing of rainwater runoff has been continuously conducted since 1976. As previously mentioned, testing on methane production was conducted. One ground water monitoring well was drilled and tested in 1984. As part of this study, soils from various locations on the site have been analyzed for hydrocarbon content. Figure 10 shows the locations of all recent on-site borings and samplings. Additionally, chemical analysis data for existing Los Angeles County monitoring wells in the area have been considered.

A. Sheetflow Analysis

Since 1976, monthly chemical analysis of rainwater runoff on the GER site has been performed in cooperation with the RWQCB. The testing parameters for this analysis and their maximum limits are as follows:

pH	6.5 - 9.0
Biochemical Oxygen Demand	20.0 - 30.0 mg/l
Phenols	.1 - .2 mg/l
Oil and Grease	10.0 - 15.0 mg/l

In all cases but one, the samples tested were within the prescribed maximum limits. In two months out of the nine year period of testing, the biochemical oxygen demand limits were exceeded. However, this reporting requirement has since been eliminated because rainwater frequently exceeded the limits. Significantly, the limits for phenols and oil and grease have never been exceeded. See Appendix B for complete reports.

B. Methane Testing and Landfill Characteristics

In 1975 Leroy Crandall and Associates investigated the characteristics of the landfill area by means of nine borings ranging in depth from 10'-70' (See Figure 10

for locations). Measurements of combustible gas were done with an explosimeter manufactured by the Mine Safety Appliance Company. In landfill areas this gas is almost entirely composed of methane. Readings were taken at the time of completion of each boring and at later times, allowing for the accumulation of gas in the bore holes. The explosimeter gave a maximum reading of 100, with a reading of over 60 generally indicating combustible gas levels.

All borings within the landfill, including the borings in the inert solids, accumulated gas levels higher than the maximum reading of the explosimeter. The two borings outside the landfill area produced readings lower than those indicating explosive gas levels. The report concluded that the native soils on the site are relatively impermeable to lateral gas migration from the landfill. Note that water was encountered in boring Number 4 at a depth of 68.5' below the surface. See Appendix C for test results and boring logs.

Borings show that the landfill ranges in depth to about 38'. The identifiable fill in the main body of the landfill is predominately wood and paper. The northwest portion of the landfill primarily is asphalt and concrete mixed with soil.

C. Water Monitoring Well

MW-10

In November, 1984 a water monitoring well was drilled on the central portion of the west side of the Site. Water was encountered at 62' below the surface and a sample was taken. The sample was analyzed for priority pollutants according to EPA method 625. No extractable priority pollutants were detected. A small concentration (11 ug/L) of pentachlorophenol, a non-priority pollutant, was found. No heavy metals were detected, but there were significant concentrations of sulfate, nitrates, and calcium. See Appendix D for results.

Soil samples were collected at four depths (12', 37', 57', and 67') as the monitoring well was drilled. These samples also were tested for priority pollutants, but none were detected in hazardous concentrations (See Appendix D).

D. Hydrocarbon Analysis of Soils

On February 20, 1985 soil samples were taken at 20 locations on the GER Site. The locations were selected on the basis of known or suspected exposure to oil spills or petroleum waste disposal activities. The total number of samples was 28, with samples taken at various depths ranging from the surface to 4'. In addition, one sample

(A.R.E.)

taken by the refinery crew in January, 1985, when the waste oil storage tank was removed was included in the analysis. The sample was taken from the bottom of the excavation (approximately 5' deep) at the east end of the tank.

As a control measure, to estimate the background levels of hydrocarbon concentrations in the soil, four additional soil samples were taken from locations adjacent to the GER site on February 21, 1985. Two samples were taken from a location approximately 685' north of Torrance Blvd. and 40' east of Figueroa St. One sample (Control 1) was taken from the borings of a monitoring well at this location. The other sample (Control 2) was taken from undisturbed soil 20' northeast of the well at a depth of 0.5'. A third sample (Control 3) was taken at a location directly east of the terminus of Torrance Blvd., approximately 60' west of the drainage channel there. The soil was taken at a depth of 0.5'. The fourth sample (Control 4) was taken at a vacant lot at the southeast corner of Main St. and 213 St., at a depth of 0.5'.

Samples were obtained with a five inch diameter hand auger and placed into jars. All samples were logged on chain of custody forms for transport to a DOHS certified laboratory for analysis of hydrocarbon concentrations (See Appendix E for laboratory reports and chain of custody forms). Analysis results for all samples taken are shown in Table 1, with hydrocarbon concentrations given in parts per million (ppm).

Based on the hydrocarbon concentrations found in the control samples and in the deeper on-site soil samples, it can be conservatively assumed that concentrations below 300 ppm are background, i.e., insignificant concentrations. Using this assumption as a standard, only six of the twenty onsite sampling locations had significant hydrocarbon concentrations in the soil samples. One of these locations, the northwestern portion of the landfill, is in an area that has been demonstrated to contain construction waste including pieces of asphalt paving. It is assumed that asphalt in the fill material is the reason for the high hydrocarbon concentration. The five remaining areas of significant hydrocarbon concentrations are: two locations in the oil farm area; two locations in the tank farm area; and one at the loading racks.

In each of these locations there were samples taken at more than one depth, and the results show that the hydrocarbon concentrations decrease rapidly with increasing soil depth.

The sample taken during the excavation of the underground waste oil storage tank had a significant level of hydrocarbon concentration.

Table 1

A/E

SOIL SAMPLE HYDROCARBON CONCENTRATIONS,
THE GOLDEN EAGLE REFINERY AND ADJACENT AREAS

<u>Location No.</u>	<u>Location</u>	<u>Sample Depth in Feet Below Surface</u>	<u>Hydrocarbon Concentration (ppm)</u>	<u>Location No.</u>	<u>Location</u>	<u>Sample Depth in Feet Below Surface</u>	<u>Hydrocarbon Concentration (ppm)</u>
1	Oil Farm	3	17	14	Tank Farm	2	4400
2	Oil Farm	2	43	14	Tank Farm	4	950
3	Oil Farm	2	4	15	Tank Farm	2	41
4	Oil Farm	0	980	16	Loading Rack	0	5900
4	Oil Farm	3	11	16	Loading Rack	2	410
5	Oil Farm	3	9	17	Support Area	1	5
6	Oil Farm	2	13	18	Process Area	0.5	21
7	Oil Farm	2	820	19	Oil Farm	3	25
7	Oil Farm	4	220	19	Oil Farm	4	14
8	Oil Farm	2	10	20	Tank Farm	0	890
9	Oil Farm	2	25	20	Tank Farm	2	590
10	Landfill	2	10	20	Tank Farm	4	48
10	Landfill	3.5	190		Underground Storage Tank	5	6600
11	Landfill	2.5	1000	Control 1	-	-	310
12	Tank Farm	3	50	Control 2	0.5	0.5	5
13	Tank Farm	2	52	Control 3	0.5	0.5	190
				Control 4	0.5	0.5	790

MARCH, 1985

BRIGHT & ASSOCIATES

E. County Well Data

Water quality data from the last three years were obtained for five Los Angeles County Flood Control District monitoring wells in the vicinity of the GER site (See Figure 11). The related data appear in Appendix F. These wells are used to measure water in the deep aquifer and, in 1983, ranged in depth from about 100'-113'. In all cases the water tested exceeded mineral quality objectives as set forth in the RWQCB Water Quality Control Plan for the Los Angeles Basin. Data on inorganic chemicals specified in the plan are not available.

IX. DESCRIPTION OF EXISTING EQUIPMENT

The refinery equipment/structures can be divided into five groups based on function/location as shown in Figure 12.

A. Process Area

This area contains the equipment for processing crude oil into the various petroleum products. It includes the three crude processing units and the accompanying equipment such as the stabilizer unit, the re-run unit, heat exchangers and cooling towers. Essentially, all of the towers and heaters are within this area.

B. Small Tank Farm

The small tank farm, located adjacent to the process area, contains the "run-down" tanks. These were used for additional treatment or blending of the petroleum products. Finished product was transferred from these tanks to the large tank farm.

C. Boiler Area

The five boilers which supply operating steam are located in this area. The electrical building which houses fuse boxes, switches, etc., and several utility company transformers also are located in this area. Assorted maintenance buildings as well as the API type wastewater separator are included because of their proximity to the boiler houses.

D. Large Tank Farm

The large tank farm, on the northern part of the Site, contains 23 tanks ranging in size from 2,000-80,000 bbls of capacity. Tanks are either of the floating-roof type or cone-roof type with a vapor recovery system. The larger tanks are separated by means of earthen berms, or

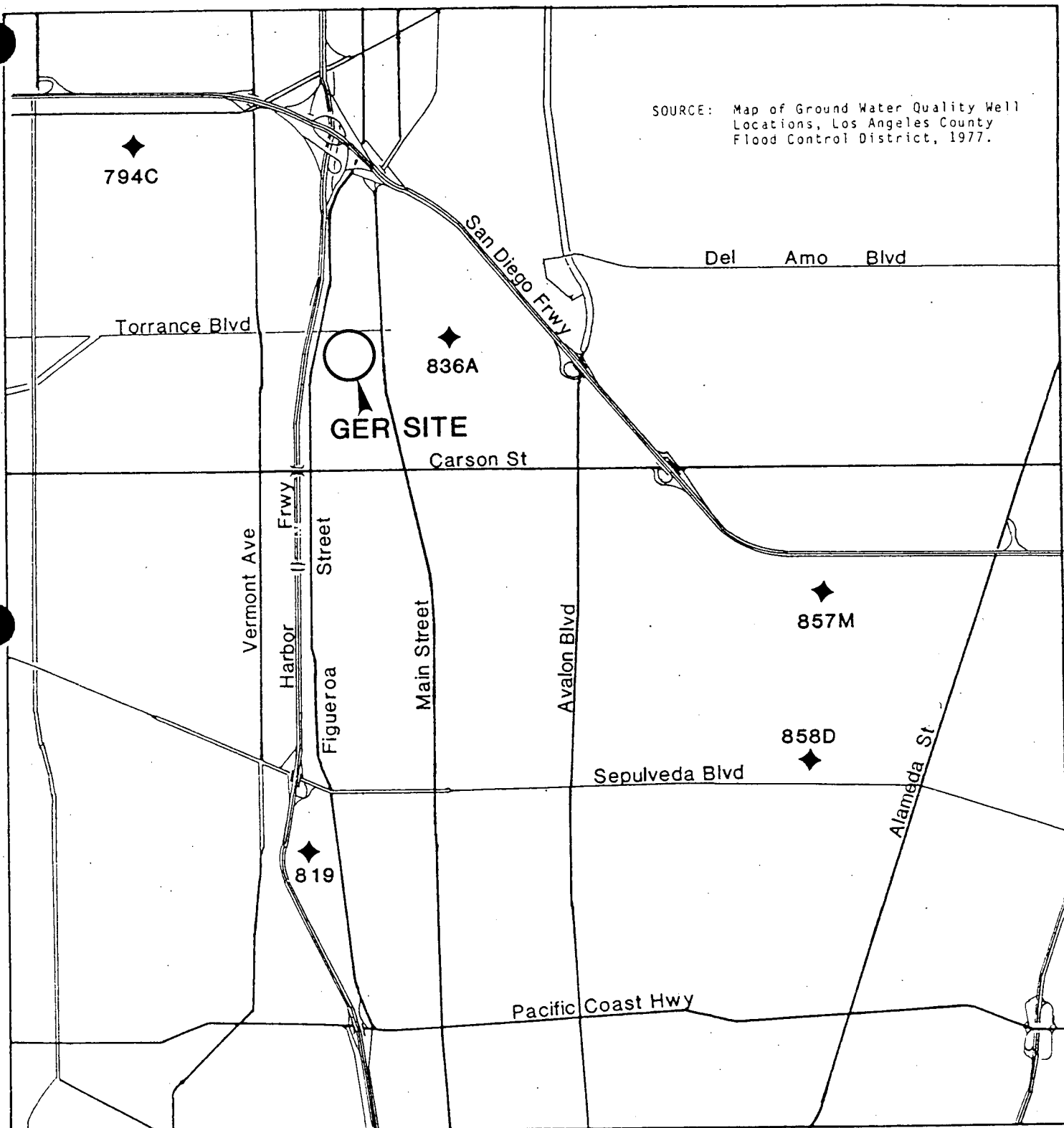


Figure 11. Los Angeles County Flood Control District Water Quality Monitoring Wells (◆).

firewalls. Also within the large tank farm area is the 150,000 cubic foot capacity sphere which was used for the storage of large or emergency vapor releases which could not be recovered and recycled. The associated flare stack which burned excess vapors also is in this area.

E. Support Facilities

The miscellaneous structures and support equipment in this area are located to the west of the boiler area. The structures include the office/laboratory, storage building, fire shed, driver's shed, tetraethyl lead tank house, garage and loading racks. Equipment includes several pumps at two main stations, naphtha filters, diesel filters, loading racks and a diesel service tank. There also is considerable above ground pipeline in this area.

X. DECOMMISSIONING ACTIONS TO DATE

Certain decommissioning activities have taken place since the refinery ceased processing crude oil in November, 1984. Refinery personnel and contractors have cleaned almost all of the storage tanks. The tanks have been washed down on the inside with high pressure water which was heated when necessary. The resultant wastes from each cleaned tank were consolidated into four tanks to await final removal. Almost all of this tank bottom waste was removed prior to February 15, 1985. Subsequently the four tanks were cleaned in the same manner as described above. All of the tank wastes were removed via vacuum truck and taken to Petroleum Waste, Inc., a hazardous waste facility near Bakersfield, California. In accordance with regulations governing waste transport and disposal. Hazardous waste manifests for these wastes are included in Appendix G. There remains on-site, about 30,000 bbl of usable oil which GER is in the process of selling. When this sale is completed, the storage tank will be cleaned, and the tank bottom waste disposed of as noted above.

In addition to the ongoing actions as described above, two underground storage tanks and the tetraethyl lead tank have been removed. A 500 gallon gasoline service tank located just north of the fire shed and a 1,000 gallon waste oil storage tank located next to the laboratory, both located approximately 5' below the surface, were removed in January, 1985 under inspection by the Los Angeles Department of County Engineer-Facilities, Sanitation Division. The removal permit is shown in Appendix G. The lead tank, which has not been used since 1965, was removed for shipment to the E. I. du Pont de Nemours Chamber Works in Deepwater, New Jersey in January, 1985. All associated piping in contact with lead or leaded gasoline was crated and will be shipped with the tank. Final disposal

of this equipment will be by incineration at the Chamber Works. Departure from the site is anticipated to occur during March, 1985.

XI. DEMOLITION ACTIONS

Demolition of the GER will take place in two phases. Phase I will include removal of all structures, tanks, equipment, etc., on the surface as well as small quantities of soils with observable oily components. This also will include removal of pumps and other equipment in exposed pits. Structures not removed will be slabs, foundations, concrete lined pits, etc., which are an integral part of the site. The remaining structures will be removed as part of Phase II.

All demolition procedures will be conducted according to applicable EPA, OSHA, DOHS and SCAQMD regulations and standards. Of particular concern are SCAQMD rules pertaining to dust generation, asbestos and hydrocarbon emissions. These rules are:

Rule 402 - nuisance emissions of dust, asbestos, hydrocarbons, etc.;

Rule 403 - fugitive dust;

Rule 1002 - asbestos emissions; and

Rule 1150 - excavation permits.

Phase I

A. Standard Demolition Procedures

Demolition of all materials, other than as stated below, will follow all OSHA and other applicable regulations. Demolition contractors generally start their operation with the removal of any non-saleable equipment such as riveted tanks, unservicable equipment, etc. During this process, attempts are made to find buyers for any usable equipment such as smaller tanks and vessels, heat exchangers, pumps, etc. Whatever equipment cannot be sold "as is" will be sold as scrap along with unusable equipment. This demolition will proceed for all above ground tanks, equipment, pipelines and structures. Any open pits, such as the API type separator, will be securely covered. Underground pipelines, and slabs and foundations will remain until Phase II demolition.

B. Demolition of Hazardous Components

Surficial demolition generally can be accomplished without concern for hazardous materials/conditions. There are three (3) types of components which will require special handling as noted below.

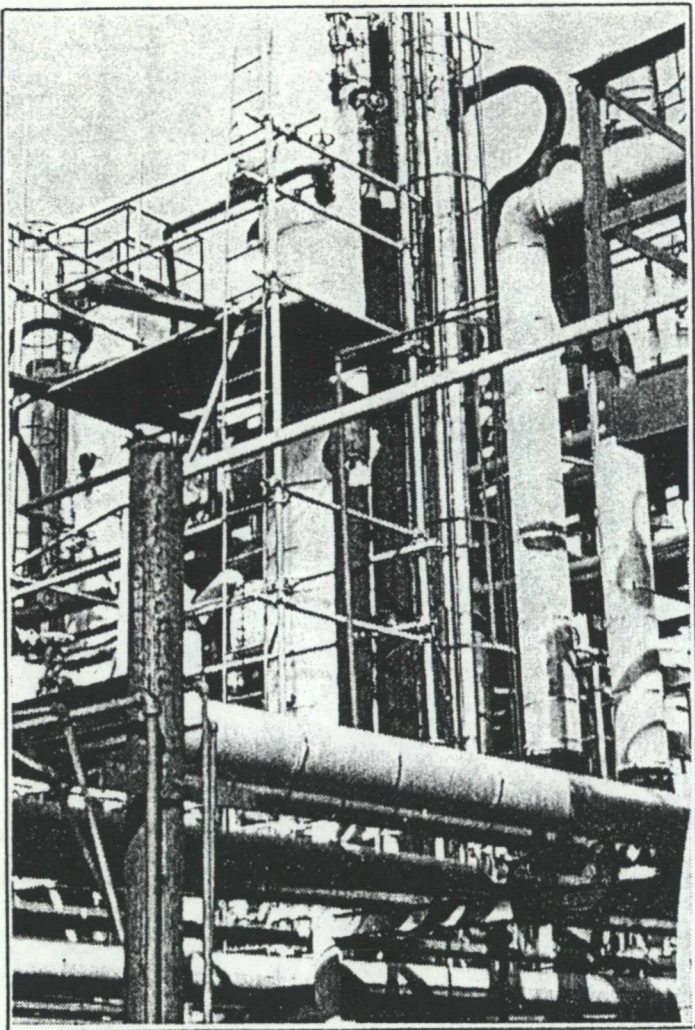
1. Asbestos Insulated Equipment:

A considerable amount of equipment was insulated to reduce heat loss. Some is covered with asbestos and some is covered with fiberglass (See Figure 13 for examples). Refinery personnel generally know which equipment has asbestos covering; however, in certain situations, because of the age of the insulation there is uncertainty. For purposes of this assessment, all equipment will be considered to be asbestos insulated unless it is known with certainty to be otherwise. Asbestos pieces are designated in Figure 14. These include towers, heat exchangers, tanks, and drums. In addition to these individual pieces of equipment, there is asbestos insulated pipeline in three of the areas designated in the equipment description section. This pipe ranges in size from 1 inch to 12 inches in diameter. There are approximately 7,250 feet in the process area, 2,365' in the boiler area, and 2,940' in the tank farm. See Appendix H for a complete listing of equipment by area and type.

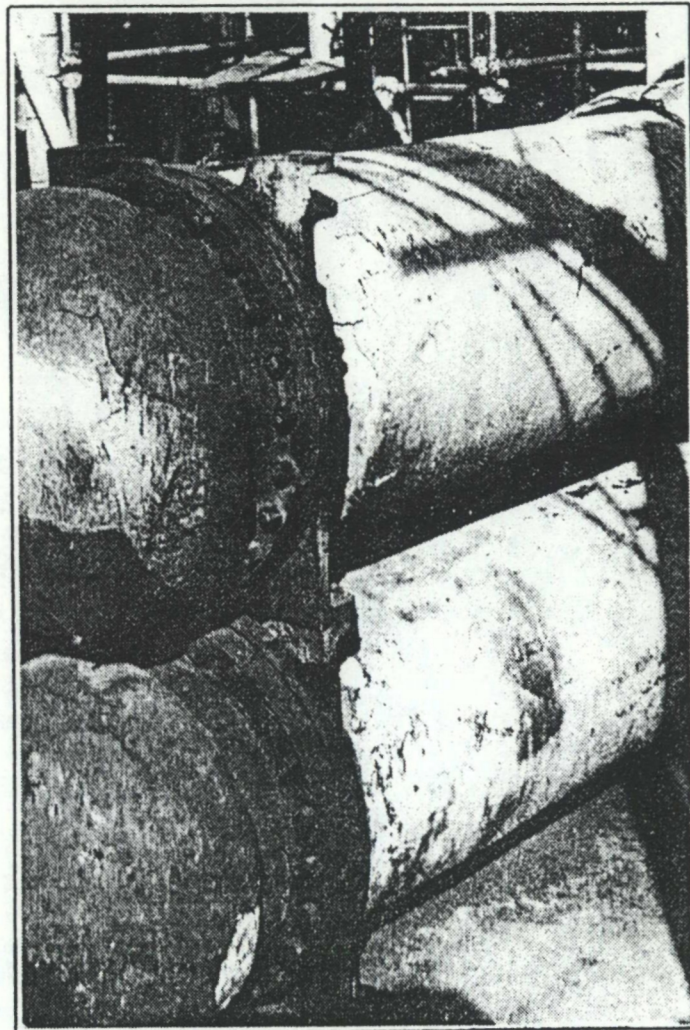
All asbestos demolition work will be conducted in accordance with EPA, OSHA and SCAQMD standards. This includes: 1) reduction of fugitive dust by means of water used with a wetting agent; 2) protective clothing, including respirators, for on-site personnel; 3) monitoring asbestos emissions with a BGI high volume sampler, ASB-III, or equivalent; and 4) proper packaging and disposal of asbestos in accordance with EPA and DOHS standards.

2. PCB Containing Equipment:

There are three on-site electrical transformers which are quite old and may contain PCB's (See Figure 14), and they will be handled accordingly. They will be de-energized and removed from their location. Liquids will be incinerated and solid material will be disposed of in a permitted solid waste disposal site. This operation will be performed by a licensed contractor, experienced in the safe handling of PCB containing equipment; and a chain of custody procedure with related manifests will be used.



A. Pipelines & Towers



B. Heat Exchangers

Figure 13. Asbestos Insulated Equipment.

3. Sludges:

Any remaining tank bottom sludges and API type separator bottoms (See Figure 14) will be washed out and removed via vacuum truck as described above. They then will be disposed of in a Class I landfill in accordance with EPA and DOHS regulations including appropriate manifests.

Phase II

Phase II demolition will consist of additional site characterization, removal of underground structures and determination of any remedial action needed to make the GER site suitable for an industrial park development or other appropriate development.

The data provided in Section VIII (Environmental Quality Testing) indicate that the site does not have substantial concentrations of problematic, hazardous materials. For example, considering that background (ambient) levels of hydrocarbons are 300 ppm or less, there are only certain areas on the site where additional testing is needed. Further, the water quality analysis for the existing monitoring well indicates no significant problem. Thus, what remains is to do additional testing to assure that there are no significant isolated accumulations of hazardous materials.

A site characterization study will be prepared to further characterize the site. This study will include groundwater and soil analyses as described below.

A. Water Quality Monitoring

The test results on the water sample taken from the existing monitoring well do not indicate any significant contamination. An additional sample from this well should be tested again for priority pollutants, plus testing for CAM metals and total hydrocarbons.

Three additional monitoring wells will be drilled on-site as shown in Figure 15. Water samples from these wells will be tested for priority pollutants, CAM metals and total hydrocarbons. Because these wells will be sufficiently separated from each other, they will show any potential differences in contamination on/from the site. Difference in contamination levels will indicate whether the contamination originated on-site or off-site. For example, if no differences in contamination levels exist between the southern and northern wells, then it can be assumed that the contamination originated off-site; a realistic assumption based on past uses of surrounding land, in particular, for landfills.

Soil samples will be taken at 15', 30' and +3' below the watertable. These samples will be analyzed for total hydrocarbons.

B. Soil Analysis

Preliminary analyses (See Environmental Quality Testing) indicate that problematic hydrocarbon concentrations generally are limited to areas which have a significant hydrocarbon concentration at subsurface levels, namely, the eastern portion of the oil farming area, the loading rack, the landfill area and the area west of tanks 55001 and 80010 (See Figure 3). Therefore, these and other areas will be tested by means of deeper borings and, in some cases, more extensive chemical tests. Additionally, the soil under the underground storage tanks will be tested. A total of 14 borings, each approximately 10' deep, will be completed in the locations shown on Figure 15. Soil samples from three levels (3', 6' and 10') will be analyzed for total hydrocarbons. Further analysis, for priority pollutants and CAM metals, will be done on the bottom samples at the locations indicated in Figure 15. The samples from the boring near the lead tank location will be tested for lead in addition to total hydrocarbons.

These analyses, combined with analysis of soils from the monitoring wells, will establish the extent of any soil contamination at lower levels, and determine the level and type of needed mitigations.

C. Landfill Analysis

Three borings, each +60' in depth, will be drilled in the landfill area to determine gas levels, compared to those determined in 1975 by LeRoy Crandall and Associates, and to determine if any problematic materials have collected at the bottom of the landfill. Soil samples, and any liquid samples will be tested for priority pollutants, CAM metals and total hydrocarbons.

XII. PLANNED MITIGATIONS

Based on the results of the Site Characterization Study, certain Site mitigations will be necessary to make the Site suitable for further use. GER may desire to accomplish all, some, or none of these mitigations. In the event that GER does not implement all necessary mitigations, these will be incorporated into the City of Carson permits necessary for development.

It is clear already, however, that site mitigations will be required for cleanup of the oil farming area, cleanup of the

refinery and tank farm areas, and certain design criteria for any proposed structures on or near the landfill.

A. Oil Farming Area

Preliminary results indicate that hydrocarbon concentrations here primarily are limited to the surface soil. If further site characterization supports these findings, the cleanup approach to be used will be treatment of this area with commercially available bacteria which "digest" the hydrocarbons into innocuous by-products such as carbon dioxide. These bacteria have been selected solely for this purpose and are harmless to the environment.

In this process dikes are constructed around the area to be treated, which is then flooded with water. The bacteria, in the form of pellets, are introduced into the water together with periodic aeration to replenish the oxygen supply. Samples from the treatment area are tested frequently to determine when the desired level of treatment is complete. After allowing time for the area to dry, it is available for development. This treatment has been used successfully many times, and in some cases on quantities of tank bottom wastes substantially greater in volume than at the GER site (Grubbs, R.B., "Environmental Applications of Biotechnology: The Current State of the Art," Genetic Control of Environmental Pollutants Conference, July 31-August, 1983, University of Washington).

B. Refinery and Tank Farm

The above described bacterial process may be applicable to these areas as well. However, in some cases the petroleum contamination may be limited to certain areas and in others it may be too deep for successful bacterial treatment. In these cases, the most cost effective treatment will be the removal of the affected soil. In most areas, however, the removal of only small amounts of surface soil will be sufficient. In cases where the contamination is deeper, soil will be removed to depths where the level of contamination is not a threat to the groundwater, e.g., 300 ppm or less. Higher levels may be acceptable if site development, such as paving, would preclude leaching of hydrocarbons to greater depths. The extent of soil removal will be based on test results, potential for use of bacteria, etc. All soil removed from the GER site will be disposed of in an approved landfill.

C. Landfill

It is possible that future development of the Site would not include development on or near the landfill area. In this case no mitigations would be necessary.

The Crandall (1975) report indicates that gas migration is not likely, due to the impermeable nature of the native soils on the Site. Further, given the age of the landfill, it is likely that methane gas production is decreasing. However, in the event structures are built near the landfill, it would be prudent to monitor any gas migration by means of methane probes. If methane gas migration is apparent it would be beneficial to install venting wells in the landfill itself. Further, any structures on or near the landfill must be protected by impermeable membranes under the slabs.

It would be possible, with appropriate techniques, to build structures on the landfill. Due to the unstable nature of the fill material, this type of construction would require the placement of support piles through the fill and into the native soil below. These piles should be cast in place in drilled holes. The piles would then support structural slabs for all buildings. Further, utility lines should be above ground to allow for inspection and to avoid breaking during any settling.

XIII. APPROVALS NEEDED FOR SITE DEMOLITION AND RESTORATION

Approvals for demolition at the Site will be sought in two phases: Phase I - demolition of surficial structures; and Phase II - demolition of remaining structures, including pits, trenches, pipelines, etc. Phase I will be based on the current data as described here and the second phase will be based on current and future site characterization. This environmental assessment, permit applications, and the site characterization study, will be submitted to the City of Carson for action and/or distribution to other agencies as appropriate.

A. Phase I - Demolition of Surficial Structures

Phase I demolition will require approvals from the City and from the SCAQMD. In addition, assurances must be provided to other agencies that the demolition actions will be accomplished in accordance with appropriate health and safety requirements.

B. Phase II - Site Characterization and Restoration

Phase II actions only will be accomplished after approval of the proposed monitoring/testing listed in this document, approval of the Site Characterization Study and the subsequent actions proposed to mitigate any potential impacts. All of the Phase II actions will require review and acceptance/approval by the City, DOHS, SCAQMD and RWQCB. Other agencies with a general interest based on legislated responsibilities also will be advised of

progress and final determinations, such as County of Los Angeles Flood Control District and Public Works Department, etc.

XIV. REFERENCES

California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan Los Angeles River Basin (4B) Abstract, 9 pp., 1975.

LeRoy Crandall and Associates, Report of Investigation of Landfill Characteristics Proposed Refinery Expansion 21000 South Figueroa Street, Carson, California For Golden Eagle Refining Co., Inc., 12 pp. with attachments, December 23, 1975.

LeRoy Crandall and Associates, Consultation Re Seismic Hazards Proposed Refinery Expansion, Los Angeles and Carson, CA for Golden Eagle Refining Co., Inc., 13 pp., January 24, 1976.

Pacific Soils Engineering, Inc., Preliminary Soils and Foundation Engineering Investigation, Lots 22-35, Tract No. 6378, Southeast Corner Torrance Boulevard and Figueroa Street, City of Carson, California, 23 pp. with attachments, January 15, 1985.

Solmar Corp., Environmental Applications of Biotechnology: The Current State of the Art, R.B. Grubbs. Presented to Genetic Control of Environmental Pollutants Conference, July 31-August 3, 1983, University of Washington, 5 pp.

State of California, Department of Water Resources, Southern District, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology, Bulletin No. 104, 1960.

APPENDICES

APPENDIX A

LOGS OF BORINGS AND TEST PITS

(Pacific Soils Engineering, November, 1984)



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 1 Sheet 1 of 1

Date 11/14/84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			P+1	CH	105.4	18.9	SOIL: Surface covered with roofing rock. Medium Clay, very dark brown, moist, firm to stiff, scattered caliche stringers.
5			4	ML/ CL	112.8	16.2	Clayey Silt, dark olive-tan, moist, very stiff, slightly porous, scattered caliche stringers.
10			4		108.5	13.4	At 8 ± ft., slightly lighter in color, drier, sandier.
15			3		103.3	13.1	
20			5	ML	107.0	10.2	Clayey Silt to Very Fine Sandy Silt, dark olive-tan, moist, hard.
25			11		103.7	6.6	Very Fine Sandy Silt, olive-tan, mottled with red oxide stains, moist, hard.
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 2 Sheet 1 of 2

Date 11/14/84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample		USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed Blows/ft.				
			CH			<u>SOIL:</u> Medium Clay, very dark brown/dark brown, mottled, moist to very moist, firm.
		P+T		106.5	19.8	
5		2	ML / CL	113.1	9.6	Clayey Silt, dark olive-tan mottled with orange oxide stains, moist, stiff.
10		2	ML	101.9	20.5	Clayey Silt, dark olive-tan mottled with orange oxide stains, moist, firm to stiff, slightly porous.
15		2		102.5	20.6	
20		2		112.8	12.4	
25		11		99.5	4.8	At 17 ± ft., mottled with nearly black oxide stains, virtually non-porous.
			ML / SM			Very Fine Sandy Silt, green-gray mottled with orange oxide stains, moist, hard.
			SM			Fine Sandy Silt to Silty Fine Sand, light green-gray, moist, hard/moderately dense.
30						Silty Fine Sand, light green-gray with orange oxide stains, moist, moderately dense to dense. CONT'D ON SHEET 2

PLATE B-2



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring 2 Sheet 2 of 2

Date 11/14/84 By FAD

Sample Method 2600# driving wght.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
35				SM	95.8	5.4	Moderately cemented, abundant shells and shell fragments, occasional interbeds (1±") of dark olive-tan Clayey Silt (ML)
				SP-SM			Slightly Silty Fine to Medium Sand, green-tan, moist, moderately dense to dense, abundant shell fragments.
				CL/CH			Medium Clay, red-brown, moist, hard, clay to sand ratio decreases with depth.
40				CL			Lean Clay, red-brown, moist, hard.
				SM	114.0	16.6	Silty Fine Sand, red-brown, moist, moderately dense.
45							END OF BORING AT 41 ± ft. NO WATER -- NO CAVING
50							
55							
60							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 3 Sheet 1 of 1

Date 11/14/84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH			<u>SOIL:</u> Fat to Medium Clay, very dark brown to black, moist to very moist, soft to 0.5 ± ft., firm below, slight petroliferous odor, firmer with depth.
			P		102.0	23.3	
				CL			
				ML/ CL			Lean Clay, olive-brown/dark brown mottled, moist, stiff.
5							Clayey Silt, dark tan/olive-tan, moist, very stiff.
			4	ML	116.4	11.9	Very Fine Sandy Silt, dark olive-tan, moist, very stiff, scattered cemented nodules.
10			3		105.6	11.9	
							Clayey Silt, olive-tan to olive brown with red to orange oxide staining, moist, stiff, moderately porous.
15			3		109.9	14.0	
							Very Fine Sandy Silt, dark olive-tan, moist, stiff, very slightly porous, scattered cemented nodules.
20			3		102.4	11.5	
							At 23 ± ft., gray-green/orange-rust mottled, moist, very stiff, virtually non-porous.
25			9		104.1	8.6	
							END OF BORING AT 26 ± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 4 Sheet 1 of 1

Date 11-14-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample		USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed Blows/ft.				
		tap	CH	106.2	20.0	<u>SOIL:</u> Medium Clay, very dark, moist, firm to stiff, moderate petroliferous odor.
			CL			Lean Clay, brown/dark brown/gray-brown mottled moist, stiff, strong petroliferous odor.
5		3	CL/ ML	108.7	9.2	Clayey Silt, dark tan, moist, stiff to very stiff, scattered caliche stringers, scattered cemented nodules, slightly porous, moderate petroliferous odor.
10		2	ML	97.4	16.3	Very Fine Sandy Silt, light green-tan, slightly moist to very moist, stiff, scattered very fine rootlets in varying states of decay, slightly porous.
15		3		108.5	15.5	Clayey Silt, dark olive-tan, moist, very stiff, moderately porous.
20		3	ML/ SM	102.5	9.7	Very Fine Sandy Silt to Silty Very Fine Sand, dark tan, slightly moist to moist, very stiff/moderately dense, scattered cemented nodules.
25		6		112.5	14.6	At 23± ft., green-gray/orange-rust mottled, occasional cemented nodules to 6-inch size.
30						END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 5 Sheet 1 of 1

Date 11-14-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
5			2	CH	106.0	17.9	SOIL: Medium Clay, gray-brown to dark brown, slightly moist, soft, crumbly, many dessication cracks. At 1± ft., very dark brown, moist, stiff. At 3± ft., dark brown/brown mottled, moist, stiff, abundant caliche stringers and pods.
			2+T	ML	109.7	14.0	Clayey Silt, light brown/dark tan mottled with tan, moist, stiff, slightly porous, scattered caliche stringers, occasional cemented nodules.
10			2	ML	99.3	14.7	Very Fine Sandy Silt, dark olive-tan, moist, stiff.
15			1+T	ML	104.3	18.3	Clayey Silt, olive-brown to olive-tan, moist, firm to stiff, very slightly porous, scattered cemented nodules.
20			7	ML	107.4	15.6	Very Fine Sandy Silt, green-gray/tan mottled, moist, hard, scattered cemented nodules.
25			6		111.1	7.9	At 24.5± ft., gray-green/orange-rust mottled, moist, very stiff.
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 8 7

Boring 6 Sheet 1 of 1

Date 11-14-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH			<u>FILL</u> : Medium Clay, very dark brown/black mottled and mixed, moist to very moist, soft to firm, strong petroliferous odor.
			Tap		104.3	20.6	
				CL			<u>Lean Clay/Clayey Silt</u> , mixed, green-gray, red-brown mixed, moist, firm, malodorous.
5			3	CL/ML	115.0	10.5	<u>SOIL</u> : Clayey Silt, dark tan, moist, very stiff, scattered caliche stringers.
10			3	ML	104.5	11.7	Very Fine Sandy Silt, light green-gray mottled with red oxide stains, moist, very stiff.
13			3		105.4	14.4	At 13± ft., dark olive-tan with red oxide stains, slightly to moderately porous.
				ML			Clayey Silt, light green-tan with traces of orange oxide staining, moist, very stiff, occasional cemented nodules to 6-inch size.
20			3	ML	102.6	14.6	Very Fine Sandy Silt, dark tan, moist, stiff, slightly porous, scattered cemented nodules. At 22± ft., light green-tan. At 24± ft., dark tan, slightly porous.
25			10		110.3	10.7	
							END OF BORING AT 26± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 7 Sheet 1 of 1

Date 11-16-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH			SOIL: (The surface is covered with roofing rock and the upper 4 to 5 inches of soil is impregnated with oilstone, tar and other petroleum by-products). Medium Clay, very dark brown, moist, firm to stiff, lighter in color with depth.
5		P			106.3	20.0	
				CL			Lean Clay, brown, moist, stiff, scattered caliche stringers.
		2+T			109.4	18.3	At 4± ft., dark olive-tan, stiff to very stiff.
							Clayey Silt, dark olive-tan, moist, very stiff.
10				ML			Clayey Silt, olive-tan, moist, hard, scattered cemented nodules.
		6			110.1	16.4	
15				CL			Clayey Silt, dark olive-tan, moist, very stiff, abundant cemented nodules.
		3			105.4	14.6	
20				CL / ML			Clayey Silt to Very Fine Sandy Silt, dark olive-tan, moist, very stiff.
		5			109.5	15.1	
25				ML			Very Fine Sandy Silt, dark red-tan, moist, hard, scattered cemented nodules to 1-inch size. With depth becomes green-gray with orange oxide stains.
		16			112.5	10.7	
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 8 Sheet 1 of 2

Date 11-16-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH/CL			FILL: (surface covered with oilstone, tar and other petroleum by-products. Medium Clay, Lean Clay/Clayey Silt mixture, very dark brown/dark brown/black, moist, soft.
			P	CH	108.1	19.3	
5			2	CL	100.0	28.4	SOIL: Medium to Fat Clay, dark brown, very moist, soft. At 2.5± ft., dark olive-brown/brown mottled, firm. At 3± ft., brown, stiff, scattered caliche stringers.
							Medium Clay, olive-brown with dark red to orange oxide stains, moist, very stiff.
10			4		100.7	11.1	Clayey Silt, dark olive-tan, moist, very stiff to hard, occasional cemented nodules to 1-inch size.
15			2	CL/ML	104.6	18.5	Clayey Silt to Very Fine Sandy Silt, olive green mottled with orange oxide stains, moist, stiff, slightly to moderately porous.
20			3	ML	98.7	12.5	Very Fine Sandy Silt, green-gray mottled with orange oxide stains, moist, very stiff. At 24± ft., dark green-gray, occasional well cemented beds to 1-inch thick,.
25			6	CL/ML	109.3	18.7	Clayey Silt, red-brown to brown, moist, very stiff, scattered fine rootlets in varying states of decay, slightly porous.
				CL/			Clayey Silt to Lean Clay, red-brown/gray-brown/gray thinly bedded, moist, very stiff.
30				ML/SM			Very Fine Sandy Silt to Silty Very Fine Sand, green- (cont. on next page) PLATE B-9



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 8 Sheet 2 of 2

Date 11-16-84 By FAD

Sample Method 2600# driving wght.
above 23 ft., 1600# below

Description

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			13	ML/SM	109.4	9.9	gray mottled with orange rust, moist, hard/moderately dense to dense, scattered shell fragments.
35			6		101.6	22.3	Clayey Silt to Very Fine Sandy Silt, green-gray mottled with orange to red oxide stains, moist, very stiff.
40			3	CL/ML	88.0	28.9	Clayey Silt to Very Fine Sandy Silt interbedded, green-gray/olive tan with orange to red oxide stains, very moist, firm.
45							END OF BORING AT 41± ft. NO WATER -- NO CAVING
50							
55							
60							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 9 Sheet 1 of 1

Date 11-16-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH			SOIL: (Surface covered with gravel/oilstone/tar) Medium Clay, very dark brown, moist to very moist, firm. Upper 6± inches impregnated with oilstone/ tar and other petroleum by-products.
			P		105.6	20.8	At 0.5± ft., very dark brown/dark brown mottled, very moist, firm.
5			4	ML	116.1	12.5	At 1± ft., brown mottled with dark brown, moist, soft to firm, slightly porous.
							Clayey Silt, dark olive-tan, moist, hard, slightly porous, scattered cemented nodules.
10			2+T	CL/ ML	100.4	22.1	Clayey Silt, green-gray to olive-brown mottled with red oxide stains, moist, stiff, scattered caliche stringers, slightly porous, scattered very fine rootlets, scattered cemented nodules.
13			2+T		107.9	18.4	
				ML			Very Fine Sandy Silt, green-gray mottled with orange oxide stains, moist, very stiff.
20			4		106.3	14.3	At 22± ft., dark red-tan mottled with green-gray, slightly finer than above, very slightly porous.
25			7		112.7	15.6	
							END OF BORING AT 26± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

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Boring 10 Sheet 1 of 2

Date 11-16-84 By FAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below.

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH/CL			FILL: Medium Clay/Lean Clay/Clayey Silt mixed, dark brown/gray-brown/dark gray-brown, moist, soft.
			P		103.0	22.2	SOIL: Medium Clay, dark brown with red to black mottling, very moist, firm, slightly porous, some decaying organic matter.
5			4	CL	118.8	14.3	Lean to Medium Clay, olive-brown, moist, firm. At 4± ft., clayey silt, dark tan, moist, stiff.
				SC			AT 5± ft., lean to medium clay, green-gray, moist, very stiff, scattered caliche stringers, faint petroliferous odor.
0			4	SP-SM	100.5	6.4	Clayey Fine Sand, green-gray, moist, moderately dense, slight petroliferous odor.
				CL			
15			2		107.1	17.9	Clayey Silt, dark olive-tan mottled with orange to red oxide stains, moist, stiff, very slightly porous, scattered cemented nodules to 1/2- inch size.
				ML			
20			3		94.9	13.1	Very Fine Sandy Silt, dark olive-tan, moist, stiff, very slightly porous, faint petroliferous odor.
25			5		108.1	15.7	At 24± ft., tan/red-tan/light green-gray mottled, slightly porous.
30				SP-SM			Slightly Silty Fine Sand, light gray-tan mottled with orange tan, slightly moist, moderately dense, abundant shells and shell fragments, occasional cemented nodules.



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 10

Sheet 2 of 2

Date 11-16-84

By EAD

Sample Method 2600# driving wght.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
35			2	CL/ ML	96.6	26.4	Clayey Silt, olive-tan to olive-brown with orange to red oxide staining, moist to very moist, firm to stiff.
			3		94.7	27.0	
40			2+T	CL/ ML/ SM	90.3	33.9	Clayey Silt/Fine Sandy Silt/Silty Fine Sand interbedded, dark gray/light gray/green-gray with some orange to red oxide staining, moist to very moist, soft to firm, strong petroliferous odor.
							END OF BORING AT 41± ft. NO WATER -- NO CAVING
45							
50							
55							
60							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring 11 Sheet 1 of 1

Date 11-19-84 By FAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below.

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
1			1	CH	109.6	17.3	SOIL: (1± inch of AC pavement) Medium Clay, black, very moist, firm, strong petroli- ferous odor, oil saturated to 1± ft. depth. At 1± ft., dark olive-brown/dark tan/black mottled, moist, firm.
5			3	CL	112.9	17.3	Lean Clay, dark olive-tan to olive-brown, moist, very stiff, slightly to moderately porous, abundant cemented nodules, slight petroliferous odor.
10			1	CL/ ML	93.4	21.7	Clayey Silt, olive-tan/grgy-green/orange-rust mottled, moist, soft to firm, moderately porous, abundant cemented nodules, faint petroliferous odor.
15			1+T		104.3	19.3	
20			4	ML	101.4	15.9	Very Fine Sandy Silt, brown/light green-gray mottled, moist, very stiff, slight petroliferous odor. At 23.5± ft., green-gray, very moist, faint petroliferous odor.
25			5	CL	108.2	19.2	Lean Clay, light brown to red-brown, moist, stiff, scattered caliche stringers, slightly porous, slight petroliferous odor.
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 12 Sheet 1 of 1

Date 11-19-84 By FAD

Sample Method 2600# driving wgt
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
							5± inches of AC pavement on 7± inches of A.B.M.
			1	CH	110.5	17.1	SOIL: Medium Clay, very dark brown to black, moist, firm.
5			2	CL	111.7	16.4	Lean to Medium Clay, dark brown/dark green-gray mottled, moist, stiff.
							Lean Clay, brown/olive-brown, mottled, moist, stiff. At 7± ft., dark tan, sandier than above.
10			3	SC/SM	101.5	8.3	Clayey Fine Sand to Silty Fine Sand, dark tan, moist, moderately dense.
				CL/ML			Clayey Silt, dark olive-tan/olive-brown with orange oxide staining, moist, stiff, slightly to moderately porous, slight petroliferous odor, sandier and less cohesive with depth.
15			3	ML	106.9	15.3	Clayey Silt to Very Fine Sandy Silt, dark olive-tan, moist, stiff, slight petroliferous odor.
							Very Fine Sandy Silt, dark olive-tan with orange oxide stains, moist, firm, scattered cemented nodules, strong petroliferous odor.
20			1+T		111.2	16.7	
				SM/ML			Silty Very Fine Sand to Very Fine Sandy Silt, green-gray/orange-tan, mottled, moist, moderately dense/hard, very strong petroliferous odor.
25			14		104.2	11.4	
							END OF BORING AT 26± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 13 Sheet 1 of 1

Date 11-19-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH			SOIL: Medium Clay, black, very moist, firm, oil saturated, strong petroliferous odor.
			P		108.9	18.1	
5			3	CL	114.8	15.6	Lean Clay, gray-green, moist, very stiff. AT 5± ft., blocky fractured structure with oil coated fracture faces.
				ML/CL			Very Fine Sandy Silt, slightly cohesive, green-gray, moist, stiff.
10			2	ML	103.9	13.7	Very Fine Sandy Silt, green-gray/dark tan, mottled, moist, stiff, slightly porous, scattered cemented nodules faint petroliferous odor.
15			5	SP	103.7	3.2	Fine Sand, tan, slightly moist to moist, moderately dense to dense.
				ML/CL			Clayey Silt, olive-brown mottled with red-rust, moist, hard, slightly porous.
20			4	ML/SM	101.1	7.7	Very Fine Sandy Silt to Silty Very Fine Sand, light gray-green, moist, very stiff/moderately dense.
				ML			Very Fine Sandy Silt, light green-gray, moist, hard, occasional interbeds of brown clayey silt (CL), very moist, very stiff.
25			12		101.9	17.7	
							END OF BORING AT 26± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 14 Sheet 1 of 1

Date 11-19-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
5			P+T	CH	104.8	20.6	SOIL: (surface covered with oil & tar) Medium Clay, black, moist to very moist, soft, oil saturated, moderate petroliferous odor. At 4± ft., dark green-gray/dark olive-brown, mottled, moist to very moist, soft, slightly porous, oil saturated, moderate petroliferous odor.
			P		104.0	19.3	
10			2	ML/ CL	95.0	20.2	Clayey Silt, green-gray/olive-brown, mottled, moist, stiff, slightly porous, scattered decaying organic matter
15			2	ML/ CL	95.6	25.2	Very Fine Sandy Silt, green-gray/dark tan mottled, moist, stiff. Clayey Silt, gray-green/olive-brown/dark brown mottled very moist, firm, scattered cemented nodules to 1-inch size.
20			2	ML	99.9	16.2	Very Fine Sandy Silt, dark tan, moist, stiff. At 20± ft., green-gray, very moist, slight petroliferous odor.
25			8	CL	104.2	22.4	Lean Clay, olive-green/green-gray mottled, moist, hard, slightly porous.
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 15 Sheet 1 of 1

Date 11-19-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
1				CH			SOIL: Medium Clay, very dark brown to black, very moist, soft, scattered pockets of oil, slightly porous, scattered decaying rootlets. At 4± ft., very dark green-gray/very dark olive-gray, mottled, very moist, soft, occasional pockets of oil.
2			P		107.4	19.3	
3							
4			P		109.5	18.4	
5							
6				CL			Lean Clay, green-gray/olive-green/red-rust mottled, moist to very moist, stiff, very slightly porous.
7							
8			2		103.5	21.7	
9							
10				ML			Clayey Silt, dark tan, moist, very stiff.
11							
12			3		96.9	11.4	
13							
14							At 18± ft., light green-gray.
15							
16				ML/CL			Clayey Silt, light green-gray/dark tan, mottled, moist, stiff to very stiff.
17			3		111.7	16.1	
18				ML			Clayey Silt to Very Fine Sandy Silt, dark tan, moist, stiff.
19							
20							At 24.5± ft., scattered shell fragments.
21							
22							
23			10	CL	100.3	22.2	Clayey Silt, olive-tan with orange to red oxide staining, moist, stiff.
24							
25							END OF BORING AT 26± ft. NO WATER -- NO CAVING
26							
27							
28							
29							
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 16 Sheet 1 of 2

Date 11-20-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				ML			FILL: (Surface covered with oil/tar)
				CH			Very Fine Sandy Silt, green-gray/olive-green, mottled moist, soft.
			P		99.4	23.8	SOIL: Medium Clay, black, very moist, soft, upper contact saturated with oil with scattered pockets below, some very fine rootlets in varying states of decay.
5			3	CL	112.3	14.1	Slight petroliferous odor, firmer with depth. At 3.5± ft., dark brown to olive-brown, slightly porous.
10			5	ML/SM	112.1	9.1	Lean Clay, brown/olive-brown/green-gray, mottled, moist, stiff to very stiff, slightly porous, scattered very fine rootlets in varying states of decay. At 4.5± ft., dark tan/green-gray/olive-brown/orange-rust, mottled moist, very stiff, slightly porous, some decaying roots and rootlets, sandier with depth.
15			3	ML/CL	112.8	16.0	Fine Sandy Silt to Silty Fine Sand, dark tan/green-gray/orange-rust, mottled, moist, very stiff/moderately dense, occasional interbeds of clayey silt (CL). At 10± ft., light brown to dark tan, very slightly porous.
20			4	SM/SP	90.5	4.1	Very Fine Sandy Silt to Clayey Silt, light green-gray with orange to red oxide staining, moist, very stiff, moderately porous, scattered cemented nodules.
				SM			Silty Fine Sand/Fine Sand interbedded, dark tan to light brown, slightly moist to moist, moderately dense.
25				SP			Silty Very Fine to Fine Sand, dark tan, slightly moist to moist, moderately dense, faint petroliferous odor.
			8	ML	99.0	10.4	Fine Sand, light gray/tan, slightly moist, moderately dense.
				CL			Very Fine Sandy Silt, olive-green/light gray, moist, very stiff.
30				CL			Lean Clay, olive-brown, mottled and thinly bedded, moist, very stiff, some orange oxide staining.



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 16 Sheet 2 of 2

Date 11-20-84 By FAD

Sample Method 2600# driving wght.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			11	CL	111.0	17.0	Lean Clay (as above):
				ML			Very Fine Sandy Silt, dark tan/green-gray, mottled, moist, hard.
							Clayey Silt, dark olive-tan, moist, very stiff.
35			3	CL	96.7	23.9	Clayey Silt to Lean Clay, olive-brown to olive-green with orange to red oxide staining, very moist, firm to stiff, cemented nodules to 5-inch size, occasional interbeds of green-gray very fine sand, faint petroliferous odor.
				ML/ CL			Clayey Silt, olive-green/green-gray with red oxide stains, very moist, firm to stiff.
40			3		96.1	26.9	
							END OF BORING AT 41± ft. NO WATER -- NO CAVING
45							
50							
55							
60							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 17 Sheet 1 of 1

Date 11-20-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CL/ML/SM	106.3	19.0	FILL: Lean Clay/Clayey Silt/Silty Fine Sand, Clay lump in a soft to firm matrix, dark olive tan/dark brown/brown mixed, moist to very moist slightly malodorous.
5				CL			Clayey Silt to Lean Clay, dark green-gray, very moist, soft.
				CH/CL	95.3	28.5	Medium to Fat Clay/Lean Clay mixed, black, very dark brown/dark green-gray, mixed and mottled, very moist, soft, strong petroliferous odor, scattered decaying organic matter. With depth becomes softer and more moist.
10				CL	102.0	18.7	At 6± ft., black, wet, very soft, slight seeps to 9± ft. depth, abundant decaying organic matter, scattered pieces of wood.
				ML			SOIL: Clayey Silt to Lean Clay, green-gray, moist, soft, slightly porous, scattered pockets of oil, strong petroliferous odor.
15					100.9	16.9	Clayey Silt to Very Fine Sandy Silt, green-gray, moist, firm to stiff, occasional interbeds of green-gray silty fine sand (SM), scattered cemented nodules, moderate petroliferous odor, stiffer with depth.
				ML/CL			Clayey Silt, olive-green/light gray-green/green-gray mottled and bedded, some orange to red oxide staining, moist, stiff, scattered cemented nodules, slight petroliferous odor.
20				CL			Clayey Silt to Lean Clay, olive-green, moist, very stiff, scattered cemented nodules, slight petroliferous odor.
				ML	108.4	14.2	Clayey Silt, olive-green, moist, very stiff, abundant cemented nodules, slight petroliferous odor.
25					90.1	10.5	Very Fine Sandy Silt, olive-green, moist, very stiff, scattered cemented nodules, strong petroliferous odor.
							END OF BORING AT 26± ft. Slight seeps from 6 to 9 ft. -- No Caving
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

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Date 11-20-84 By FAD

Sample Method 2600# driving wgh
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			P	CL/ML/SM	102.2	21.8	FILL: Medium Clay/Clayey Silt/Silty Very Fine Sand, mixture, black/green-gray, very moist, soft to firm, slightly porous, scattered decaying organics, occasional pockets of oil, strong petroliferous odor.
5				CH	108.9	18.2	SOIL: Medium Clay, black/very dark green-gray, very moist, firm, slightly porous, some decaying organics, moderate petroliferous odor. At 5± ft., dark brown/dark-green-gray/red-brown, mottled, moist, firm scattered very fine rootlets.
10			2	CL	106.6	17.5	Medium Clay, dark gray-green/dark olive-brown mottled and bedded with red to orange oxide stains, moist, stiff, slightly malodorous.
				CL/ML			Lean Clay to Clayey Silt, green-gray dark tan mottled, moist, stiff.
15			4	ML	105.1	11.6	Clayey Silt, to Very Fine Sandy Silt, dark tan, moist, stiff to very stiff.
20			3		90.7	14.3	
				CL			Clayey Silt, dark tan, moist, very stiff.
25			4	ML	107.4	10.9	Clayey Silt to Very Fine Sandy Silt, dark tan mottled with light green-gray, moist, very stiff.
30							END OF BORING AT 26± ft. NO WATER -- NO CAVING



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring 19 Sheet 1 of 1

Date 11-20-84 By FAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CH/CL			FILL: Clayey Silt/Medium Clay mixture, dark tan/brown/very dark brown, slightly moist to moist, soft. SOIL: Medium Clay, very dark brown/black mottled and bedded, moist, firm to stiff, some decaying roots and rootlets, lighter in color with depth. At 4± ft., brown, moist, stiff, scattered caliche stringers.
		P		CH	101.2	21.5	
5			2		111.8	16.4	
				CL			Medium Clay, dark olive-tan/olive-brown, moist, stiff, slightly porous.
							Clayey Silt to Lean Clay, dark tan, moist, very stiff.
10			4	CL/ML	101.6	8.7	Clayey Silt, dark tan, moist, very stiff, very slightly porous, scattered very fine rootlets.
				ML			Clayey Silt to Very Fine Sandy Silt, olive-tan mottled with brown (decaying organics), slightly moist to moist, very stiff, slightly porous. At 12± ft., light to olive-tan.
15			5	ML/CL	103.1	9.5	Clayey Silt, olive-tan, mottled with orange oxide staining, moist, hard, slightly porous, scattered decaying rootlets.
				ML			Very Fine Sandy Silt to Clayey Silt, olive-tan/light green-gray/orange-rust mottled, slightly moist to moist, very stiff. At 20± ft., moist.
20			3		100.0	22.6	
				ML/CL			Clayey Silt, dark tan mottled with light gray and orange-rust, moist, very stiff, scattered cemented nodules.
25			8	ML	95.6	8.2	Very Fine Sandy Silt, light green-gray/orange-tan mottled, slightly moist, very stiff.
							END OF BORING AT 26± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring 20 Sheet 1 of 2

Date 11-20-84 By FAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below.

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			P	CH/CL/ML/SM	103.3	20.0	<u>FILL</u> : Medium Clay/Lean Clay/Clayey Silt/Silty Fine Sand - mixture, black/dark brown/brown/red-brown, very moist, very soft, slightly to moderately porous, scattered rootlets, slightly malodorous.
5			P	CH/OL	86.1	32.7	Medium Clay, dark green-gray/black mottled, very moist to wet, very soft, scattered decaying roots and rootlets. <u>SOIL</u> : Clayey Silt with abundant decaying organic matter, black/very dark brown, very moist, very soft, spongy.
10			P+1	CH/CL	112.6	17.4	Medium Clay, very dark brown/very dark green-gray/red-rust bedded and mottled, very moist, soft, slightly malodorous.
15			2		113.4	16.7	Lean to Medium Clay, dark gray-brown/red-brown mottled, moist to very moist, firm, red-brown--more predominate with depth, slightly porous, scattered decaying rootlets, slightly malodorous. At 12± ft., red-brown mottled with dark green-gray, moist to very moist, firm to stiff. At 14± ft., red-brown, moist to very moist, stiff, slightly porous, scattered very fine rootlets in varying states of decay.
20			3	ML	95.4	15.8	Clayey Silt, dark tan mottled with orange oxide stains, moist, hard.
25			13		113.0	11.6	
30				ML/CL			Clayey Silt, dark tan/light gray mottled and bedded, moist, very stiff.



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 20 Sheet 2 of 2

Date 11-20-84 By FAD

Sample Method 2600# driving wght.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
			5	ML/ CL	102.8	19.9	Clayey Silt (as above).
				ML			Clayey Silt, green-gray mottled with orange oxide stains, very moist, stiff.
35			4	CL/ ML	94.3	27.0	Clayey Silt, olive-tan mottled with red oxide stains, very moist, stiff.
				CL			Clayey Silt to Lean Clay, olive-tan mottled with red oxide stains, very moist, stiff.
40			6		112.7	15.5	Lean Clay, olive-tan/olive-brown mottled with orange to red oxide stains, moist, very stiff, slightly to moderately porous.
45							END OF BORING AT 41± ft. NO WATER -- NO CAVING
50							
55							
60							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring 21 Sheet 1 of 1

Date 11-21-84 By FAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
				CL			FILL: Clayey Silt, red-tan, damp, stiff.
				CL			Clayey Silt to Lean Clay, black, moist, stiff.
			2	SM	105.2	12.5	Silty Sand, green-gray, slightly moist, moderately dense.
5			1	CH	105.7	17.5	Medium Clay, very dark brown, moist, stiff. At 5.5± ft., numerous pockets and stringers of oil.
				CL			SOIL: Lean Clay, brown/dark tan, moist, hard, slightly to moderately porous, scattered very fine decaying rootlets, sandier with depth.
10			12		110.0	7.1	
				ML			Very Fine Sandy Silt, dark tan, slightly moist, hard.
				SM			Silty Fine Sand, tan, damp, moderately dense to dense, scattered cemented nodules, cleaner with depth.
15			7	SP	97.2	3.4	Fine Sand, tan, damp, moderately dense to dense, scattered cemented nodules. At 18± ft., abundant cemented nodules.
20			6		99.8	1.8	
							At 24± ft., light gray, slightly to moderatley malodorous.
25			11		98.1	2.4	
							END OF BORING AT 25± ft. NO WATER -- NO CAVING
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 10897

Boring B-22 Sheet 1 of 2

Date 11-21-84 By EAD

Sample Method 2600# driving wt.
above 23 ft., 1600# below.

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
5				CL/ ML/ SM			<u>FILL:</u> Medium Clay/Lean Clay/Clayey Silt/Silty Fine Sand--mixture, moist, soft/loose, scattered debris (primarily AC fragments to 10-inch size), very malodorous. At 8± ft., red-brown clayey silt to lean clay, very moist to wet, very soft, malodorous. At 10± ft., red-brown/gray-brown/olive-brown-mixture, very moist, very soft, very malodorous.
15							
20							<u>ORGANIC FILL:</u> Predominately wood with some paper, plastic, rubber, metal etc..., virtually no soil, very malodorous. At 25± ft., becomes wet with water seeping from walls. The seeps become more numerous and intense with depth.
25							
30							



BORING LOG

Project: GOLDEN EAGLE REFINERY

W.O. 1 0 8 9 7

Boring 22 Sheet 2 of 2

Date 11-21-84 By FAD

Sample Method 2600# driving wght
above 23 ft., 1600# below

Depth (ft.)	Sample			USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	Description
	Bulk	Undisturbed	Blows/ft.				
35							<u>ORGANIC FILL</u> (as above). Very slow drilling - approximately 1 ft. per hour. Abandoned boring at 36± ft.
40							END OF BORING AT 36± ft. Water as noted above-- No Caving
45							
50							
55							
60							

TABLE 1
LOG OF TEST PITS
GOLDEN EAGLE REFINERY
CARSON
=====

Depth (feet)	USGS Symbol	Description
=====		
<u>TP-1</u>		
0.0 - 0.3	CL	<u>FILL</u> : Clayey Silt, brown, dry to damp, soft, subangular roofing rock to 3-inch size on surface.
0.3- 3.5	CH	<u>SOIL</u> : Medium Clay, very dark gray-brown, moist, very stiff. At 2.5± ft., scattered caliche stringers.
3.5- 4.5	CL	Lean Clay, reddish brown, moist, stiff.
4.5 -10.0	ML	Clayey Silt, green-gray, moist, stiff, abundant caliche stringers. At 5± ft., Very Fine Sandy Silt, dark tan, moist, very stiff to hard, abundant caliche stringers, occasional cemented nodules to 7± ft. depth.
Total Depth -- 10± ft. No Water -- No Caving		
 <u>TP-2</u>		
0.0- 2.0	CL	<u>FILL</u> : Clayey Silt to Lean Clay, reddish brown, dry to damp, stiff, 10±% subangular to subrounded gravel to 1-inch size. Some scattered oilstone and decaying wood noted at lower contact.
2.0- 3.5	CL	<u>SOIL</u> : Lean Clay, dark brown, moist, stiff.
3.5- 6.5	CH	Medium Clay, very dark brown, moist to very moist, very stiff. At 4± ft., mottled brown and dark brown.
6.5- 7.5	CL	Lean Clay, olive brown, moist, stiff.

TP-2 (cont.)

7.5-10.0 CL/ML Clayey Silt, dark tan, moist, very stiff to hard, sandier with depth.

10.0-12.5 ML Very Fine Sandy Silt, dark tan, moist, stiff to hard, very slightly porous.

Total Depth -- 12.5± ft.
No Water -- No Caving

TP-3

0.0- 3.5 CH SOIL: Medium Clay, dark brown, slightly moist, firm to stiff, abundant dessication cracks to 1.5± ft. depth.

At 1.5± ft., moist, hard, scattered fine rootlets to 1/16-inch size, lighter in color with depth.

3.5- 4.5 CL Lean Clay, brown, moist, hard, scattered fine rootlets to 1/32-inch size.

4.5-11.0 ML Very Fine Sandy Silt, dark tan, slightly moist to moist, hard, scattered very fine rootlets, scattered caliche stringers, scattered cemented nodules.
At 9.5± ft., green-tan.

Total Depth -- 11± ft.
No Water -- No Caving

TP-4

0.0- 2.0 SM FILL: Silty Fine Sand, tan, dry to damp, moderately dense.

At 0.5± ft., mixture of AC fragments and very dark brown lean clay.

2.0- 5.0 CL SOIL: Lean Clay, very dark brown/dark brown, mottled, moist, stiff.

ML/CL Very Fine Sandy Silt/Lean Clay interbedded, dark reddish tan/olive-green/dark brown, moist, stiff, slightly porous.

At 8± ft., very fine sandy silt to clayey silt, dark reddish tan streaked with green-gray, moist, very stiff.

Total Depth -- 10± ft.
No Water -- No Caving

Work Order 10897

TP-5

0.0- 4.5	CH	<u>SOIL:</u> Medium Clay, dark brown, dry, loose, numerous dessication cracks to 1± ft. depth. At 1± ft., moist, very stiff, scattered caliche stringers.
4.5- 5.0	CL	Lean Clay, brown, moist, stiff, scattered caliche stringers.
5.0-10.0	ML	Very Fine Sandy Silt, dark tan, moist, very stiff, abundant very fine rootlets in varying states of decay, slightly to moderately porous. At 8± ft., dark olive-tan.

Total Depth --10± ft.
No Water -- No Caving

TP-6

0.0- 3.0	CH	<u>SOIL:</u> Medium Clay dark gray-brown, dry to damp, soft. At 0.5± ft., dark brown, moist, very stiff, slightly less plastic with depth.
3.0-10.0	ML	Very Fine Sandy Silt, gray-green mottled with orange-oxide staining, moist, hard.

Total Depth 10± ft.
No Water -- No Caving

TP-7

0.0- 5.0	CH/CL/ML	<u>FILL:</u> Medium Clay/Lean Clay/Very Fine Sandy Silt mixed, moist, stiff, numerous dessication cracks to 3± ft. depth.
5.0- 7.0	CL	<u>SOIL:</u> Lean Clay to Very Fine Sandy Silt, black, very moist, soft, malodorous.

Work Order 10897

TP-7 (cont.)

7.0-13.0	CH	Lean Clay, dark brown/dark gray-brown/ dark red-brown mottled, very moist, soft to firm, slightly malodorous. At 10± ft., dark gray/red-brown mottled, very moist, stiff, malodorous.
13.0-15.0	CH	Lean to Medium Clay, red-brown mottled with gray-green, very moist, firm to stiff, malodorous. Total Depth -- 15± ft. No Water -- No Caving

TP-8

0.0- 4.0	CH	<u>SOIL:</u> Medium Clay, dark brown, slightly moist, soft, numerous dessication cracks to 1± ft. depth, occasional roots and rootlets to 4± ft. depth. At 1± ft., moist, very stiff. At 3± ft., brown.
4.0- 6.5	ML/CL	Clayey Silt, olive tan, moist, very stiff to hard.
6.5-10.0	ML	Very Fine Sandy Silt, dark tan, moist, very stiff to hard. Total Depth -- 10± ft. No Water -- No Caving

TP-9

0.0- 5.0	ML/SM	<u>FILL:</u> Fine Sandy Silt to Silty Fine Sand, dark olive tan, moist, firm/loose to moderately dense, scattered angular to subangular gravel to 1-inch size, scattered AC fragments to 3-inch size.
5.0- 6.0	CL	Lean to Medium Clay, red-brown/olive-green/dark brown, mixed, very moist, soft.
6.0- 6.5	CL	Lean Clay, very dark gray to black, moist, soft.

Work Order 10897

TP-9 (cont.)

6.5-9.0	CH	<u>SOIL:</u> Medium Clay, dark brown, moist, very stiff, scattered caliche stringers.
9.0-12.0	ML	Clayey Silt to Very Fine Sandy Silt, dark tan, moist, hard, abundant caliche stringers, some very fine rootlets, slightly porous. With depth, sand to clay ratio increases.

Total Depth -- 12± ft.
No Water -- No Caving

TP-10

0.0- 1.0	CL	<u>FILL:</u> Clayey Silt, reddish tan, damp, stiff.
1.0- 3.0	SM	Silty Fine Sand, light gray-green, damp, moderately dense.
3.0- 5.0	CH	<u>SOIL:</u> Fat to Medium Clay, very dark brown, moist, very stiff. At 4± ft., dark brown.
5.0- 7.0	CL	Lean Clay, brown, moist, very stiff.
7.0- 9.0	CL/ML	Clayey Silt to Very Fine Sandy Silt, dark tan, moist, very stiff to hard.
9.0-10.0	ML	Very Fine Sandy Silt, dark tan, moist, hard.

Total Depth -- 10± ft.
No Water -- No Caving

TP-11

0.0- 0.5	SM/ML	<u>FILL:</u> Silty Fine Sand to Fine Sandy Silt, brown, damp, loose.
0.5- 3.0	CH	<u>SOIL:</u> Fat to Medium Clay, very dark brown, moist, stiff, slightly malodorous.

TP-11 (cont.)

3.0- 8.0	CL/ML	Clayey Silt, olive-brown, moist, very stiff to hard, abundant caliche stringers, many fine rootlets in varying states of decay, slightly porous, slightly malodorous.
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8.0-10.0	ML	Very Fine Sandy Silt, dark tan, moist, hard. Total Depth -- 10± ft. No Water -- No Caving
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TP-12

0.0- 4.0	CL/CH	<u>FILL:</u> Lean to Medium Clay, brown, dry to damp, soft. At 1.5± ft., dark brown, moist to very moist, firm to stiff. At 2.5± ft., occasional pockets of gray-green clay, strong petroliferous odor.
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4.0- 5.5	CL	<u>SOIL:</u> Lean Clay to Clayey Silt, dark tan, moist, very stiff, abundant caliche stringers.
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5.5- 9.0	ML	Very Fine Sandy Silt, dark tan, moist, very stiff. At 6.5± ft., dark olive-tan, hard, scattered caliche stringers, slightly porous.
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9.0-11.0	ML/SM	Fine Sand to Silty Fine Sand, dark tan, moist, very stiff to moderately dense.
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Total Depth -- 11± ft.
No Water -- No Caving

TP-13

0.0- 4.5	CH	<u>SOIL:</u> Medium Clay, dark brown, damp, soft, abundant dessication cracks to 1± ft. depth. At 1± ft., very dark brown, moist, stiff, scattered caliche stringers. At 3.5± ft., dark brown to brown.
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4.5- 5.5	CL	Lean Clay, gray-green, moist, stiff, moderate petroliferous odor.
----------	----	---

TP-13 (cont.)

5.5- 8.0	ML/CL	Clayey Silt, dark tan, moist, very stiff to hard.
8.0-10.0	ML	Very Fine Sandy Silt, dark tan, moist, hard.

Total Depth -- 10± ft.
No Water -- No Caving

TP-14

0.0- 0.5	CL/SM	<u>FILL:</u> Lean Clay/Silty Sand mixture, dark brown/brown/dark tan/tan, slightly moist to moist, soft/loose. Clay lumps in a dry loose silty sand matrix.
0.5- 4.0	CH	<u>SOIL:</u> Medium Clay very dark brown, moist, firm to stiff. At 1± ft., dark brown, moist, stiff.
4.0-5.0	CL	Lean Clay, dark brown, moist, stiff.
5.0- 6.5	CL/ML	Clayey Silt to Very Fine Sandy Silt, dark tan, moist, very stiff.
6.5-10.0	ML	Very Fine Sandy Silt, dark tan, moist, stiff. At 7± ft.; slightly less stiff than above, slightly to moderately porous.

Total Depth -- 10± ft.
No Water -- No Caving

TP-15

0.0- 4.0	CH	<u>SOIL:</u> Medium Clay, brown, slightly moist, soft. At 0.5± ft., very dark brown, moist. At 3.0± ft., brown.
4.0- 8.0	CL/ML	Clayey Silt, dark tan/olive-tan, moist, stiff. At 7± ft., olive-brown/brown, slightly porous.
8.0-11.0	ML	Very Fine Sandy Silt, olive-tan/tan mottled, moist, firm to stiff. At 9± ft., stiff to very stiff.

Total Depth -- 11± ft.
No Water -- No Caving

Work Order 10897

TP-16

0.0- 0.3

FILL: 3± inches of crushed roofing rock.

0.3- 3.0

CH

SOIL: Fat to Medium Clay, very dark brown, moist, stiff.

At 2.5± ft., dark brown, scattered caliche stringers.

3.0- 5.5

CL

Lean Clay, brown, moist, firm to stiff.

5.5- 8.0

CL/ML

Clayey Silt, dark olive tan to olive-brown, moist, firm to stiff, slightly porous.

At 7± ft., stiff.

ML

Very Fine Sandy Silt, dark tan to olive-brown, moist, very stiff, slightly porous.

Total Depth -- 10± ft.

No Water -- No Caving

TP-17

0.0- 4.0

CH

SOIL: Medium Clay, very dark brown, moist, stiff.

At 0.5± ft., very stiff.

At 2.5± ft., dark brown, stiff, scattered caliche stringers.

4.0- 7.0

CL/ML

Clayey Silt, dark tan/dark olive-brown, moist, stiff.

7.0- 9.0

ML

Clayey Silt to Very Fine Sandy Silt, dark tan/dark olive-tan, moist, stiff, scattered cemented nodules to 1-inch size.

9.0-11.0

ML

Very Fine Sandy Silt, olive-gray to olive tan, moist, stiff, slightly porous.

Total Depth -- 11± ft.

No Water -- No Caving

Work Order 10897

TP-18

0.0- 2.0	CL/ML	<u>FILL:</u> Lean Clay/Clayey Silt mixture, tan/light brown, damp, firm. At 0.5 ft., light olive tan, moist, firm to stiff, scattered AC fragments to 3-inch size. Some AC and oilstone fragments at lower contact.
2.0- 5.0	CH	<u>SOIL:</u> Medium Clay, very dark brown, moist, very stiff. At 4.5± ft., dark brown.
5.0- 7.0	CL	Lean Clay, brown, moist, very stiff.
7.0- 9.0	CL	Clayey Silt, olive-tan to olive-brown mottled with orange oxide stains, moist, hard.
9.0-10.0	CL/ML	Clayey Silt to Very Fine Sandy Silt, olive-tan mottled with orange oxide stains, moist, hard.
Total Depth -- 10± ft. No Water -- No Caving		

TP-19

0.0- 0.5	CL/ML	<u>FILL:</u> Lean Clay/Clayey Silt mixed, tan/light brown, damp, firm to stiff.
0.5- 3.0	CH	<u>SOIL:</u> Medium Clay, very dark brown mottled with reddish brown, moist to very moist, firm to stiff.
3.0- 5.0	CL	Lean to Medium Clay, dark tan, moist, stiff.
5.0- 8.0	CL/ML	Clayey Silt to Lean Clay, dark olive-tan, moist, stiff, slightly porous.
8.0-10.0	CL/ML	Clayey Silt, dark olive-tan/olive-brown, moist, very stiff, slightly porous.
Total Depth -- 10± ft. No Water -- No Caving		

Work Order 10897

TP-20

0.0- 3.0	CH	<u>SOIL:</u> Medium Clay, dark brown, moist, very stiff. At 1.5± ft., brown.
3.0- 4.0	CL	Lean Clay, reddish brown/dark brown mottled, moist, firm to stiff.
4.0- 7.0	CL	Clayey Silt, reddish brown/dark olive-tan mottled, moist, stiff, very slightly porous.
7.0-10.0	CL/ML	Clayey Silt to Very Fine Sandy Silt, dark tan, moist, very stiff.

Total Depth -- 10± ft.

No Water -- No Caving

APPENDIX B

GOLDEN EAGLE REFINING COMPANY INC.

1976 YEARLY SUMMARY

STORM WATER TESTS

	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u> <u>May</u> <u>June</u>	<u>July</u> <u>Aug.</u> <u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Parameter</u> <u>Maximum Limits</u>
units	None	6.75	None	None	7.03	None	None	None	6.5 - 9.0
Chemical Oxygen Demand mg/l	Disc.	9	Disc.	Disc.	6	Disc.	Disc.	Disc.	20 - 30
enols mg/l		0.04			0.07				.1 - .2
rbidity J.T.U.		340			240				-----
tal Organic Carbon, mg/l		62			60				35 Max. (Deleted)
l & Grease mg/l		1.1			2.0				10 - 15
emperature °F		68°			68°				100° F Max.
Quantity Discharged		210,680*			240,455*				

Best Daily Rate
for year was 1,427,048 Gallons

GOLDEN EAGLE REFINING COMPANY INC.

1977 YEARLY SUMMARY

STORM WATER TESTS

	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u> <u>May</u> <u>June</u>	<u>July</u> <u>Aug.</u> <u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Parameter</u> <u>Maximum Limits</u>
pH (units)	6.85	None	7.22	6.8	7.5	None	None	7.69	6.5 - 9.0
Biochemical Oxygen Demand (mg/l)	6	Disc.	40	6	2	Disc.	Disc.	21	20 - 30
Phenols (mg/l)	0.04		0.05	0.05	0.05			0.05	.1 - .2
Turbidity (JTU)	380		280	95	75			260	-----
Oil & Grease (mg/l)	3.4		5.4	2.7	6.9			11	10 - 15
Temperature °F	68		61	64	65			62	100° F Max.
Quantity Discharged	262,670*		571,543*	315,600*	900,000*			795,000*	995,600 Gallons

*Highest Daily Rate

Total Discharged for year was 8,584,270 gallons

GOLDEN EAGLE REFINING COMPANY INC.

1978 YEARLY SUMMARY

RAINWATER TESTS

Item	Jan.	Feb.	March	April	July	Oct.	Nov.	Dec.	Parameter Max. Limits
				May	Aug.				
				June	Sept.				
PH	7.12	7.79	7.95	None	None	None	None	None	6.5 - 9.0 Unit
Biochemical Oxygen Demand	20	16	13	"	"	"	"	"	20 - 30 mg/l
Oil & Grease	12.9	6.7	5.6	"	"	"	"	"	10 - 15 mg/l
Phenols	0.05	0.05	0.05	"	"	"	"	"	.1 - .2 mg/l
Turbidity	160	80	25	"	"	"	"	"	None
Temperature (°F)	64	63	64	"	"	"	"	"	100° Maximum

QUANTITY DISCHARGED

GALLONS PER MONTH

JANUARY	3,854,794
FEBRUARY	3,776,766
MARCH	5,624,242
APRIL	-0-
MAY	-0-
JUNE	-0-
JULY	-0-
AUGUST	-0-
SEPT.	-0-
OCTOBER	-0-
NOVEMBER	-0-
DECEMBER	-0-

TOTAL QUANTITY DISCHARGED 13,255,802

GOLDEN EAGLE REFINING COMPANY INC.
1979 YEARLY SUMMARY
RAINWATER TESTS

Item	Jan.	Feb.	March	April May June	July Aug. Sept.	Oct.	Nov.	Dec.	Parameter Max. Limits
pH	7.40	7.60	7.67	-0-	-0-	-0-	-0-	-0-	6.5 - 9.0 Unit
Biochemical Oxygen Demand	11	TR< 5	(105)	"	"	"	"	"	20 - 30 mg/l
Oil & Grease	1.6	TR<0.2	4.6	"	"	"	"	"	10 - 15 mg/l
Phenols	0.05	TR<0.05	TR<0.05	"	"	"	"	"	.1 - .2 mg/l
Turbidity	104	105	105	"	"	"	"	"	None
Temperature (°F)	60	59	61	"	"	"	"	"	100° Maximum

QUANTITY DISCHARGED

GALLONS PER MONTH

JANUARY	5,999,000
FEBRUARY	4,841,100
MARCH	2,675,000
APRIL	-0-
MAY	-0-
JUNE	-0-
JULY	-0-
AUGUST	-0-
SEPT.	-0-
OCTOBER	-0-
NOVEMBER	-0-
DECEMBER	-0-
TOTAL DISCHARGED	13,515,100

GOLDEN EAGLE REFINING COMPANY INC.
1980 YEARLY SUMMARY
RAINWATER TESTS

Item	Jan.	Feb.	April	July	Sept.	Oct.	Nov.	Dec.	Parameter
			May	Aug.					Max. Limits
	7.0	8.0	March	June					6.5 - 9.0 Unit
Chemical Oxygen Demand	10	TR < 5	14	"	"	"	"	"	20 - 30 mg/l
Oil & Grease	6.0	0.2	3.0	"	"	"	"	"	10 - 15 mg/l
Phenols	< 0.01	TR < 0.05	TR < 0.05	"	"	"	"	"	.1 - .2 mg/l
Turbidity (NTU)	23	15.2	7.5	"	"	"	"	"	None
Temperature (°F)	60	61	60	"	"	"	"	"	100° Maximum

<u>QUANTITY DISCHARGED</u>	
<u>GALLONS PER MONTH</u>	
JANUARY	17,580,000
FEBRUARY	17,525,000
MARCH	3,150,000
APRIL	-0-
MAY	-0-
JUNE	-0-
JULY	-0-
AUGUST	-0-
SEPTEMBER	-0-
OCTOBER	-0-
NOVEMBER	-0-
DECEMBER	-0-
TOTAL DISCHARGED	38,255,000

GOLDEN EAGLE REFINING COMPANY INC.
1981 YEARLY SUMMARY
RAINWATER TESTS

pH	Item				April	July				Parameter	
		Jan.	Feb.	March	May	Aug.	Oct.	Nov.	Dec.	Max.	Limits
		6.4	7.67	8.2	June	Sept.	-0-	8.1	8.2	6.5 - 9.0	Unit
	Biochemical Oxygen Demand	6.4	*	*	-0-	-0-	-0-	*	*	20 - 30	mg/l
	Oil & Grease	5.8	3.2	4.5	-0-	-0-	-0-	1.2	8.5	10 - 15	mg/l
	Phenols	0.01	0.78	0.05	-0-	-0-	-0-	0.05	0.05	.1 - .2	mg/l
	Turbidity (NTU)	155	140	275	-0-	-0-	-0-	156	320	None	
	Temperature (°F)	65	62	56	-0-	-0-	-0-	60	60	100° F	Max.

* Deleted from reporting requirements

QUANTITY DISCHARGED
GALLONS PER MONTH

JANUARY	2,700,000
FEBRUARY	2,300,000
MARCH	6,150,000
APRIL, MAY &	
JUNE	-0-
JULY, AUGUST &	
SEPTEMBER	-0-
OCTOBER	-0-
NOVEMBER	2,250,000
DECEMBER	600,000

GOLDEN EAGLE REFINING COMPANY INC.
1982 YEARLY SUMMARY
RAINWATER DISCHARGES

Item	Jan.	Feb.	March	April May June	July Aug. Sept.	Oct.	Nov.	Dec.	Parameter Max. Limits
pH	8.1	-0-	7.3	-0-	-0-	-0-	7.9	-0-	6.5 - 9.0 Unit
Oil & Grease	4.4	-0-	7.8	-0-	-0-	-0-	5.3	-0-	10 - 15 mg/l
Phenols	0.05	-0-	0.05	-0-	-0-	-0-	0.05	-0-	.1 - .2 mg/l
Turbidity (NTU)	194	-0-	67.2	-0-	-0-	-0-	308	-0-	None
Temperature (°F)	63	-0-	60	-0-	-0-	-0-	61	-0-	100° Maximum

QUANTITY DISCHARGED

JANUARY	3,200,000 Gallons
MARCH	1,500,000 Gallons
NOVEMBER	<u>1,800,000</u> Gallons
TOTAL	6,500,000 Gallons

GOLDEN EAGLE REFINING COMPANY INC.

1983 YEARLY SUMMARY

RAINWATER DISCHARGES

<u>Item</u>	<u>Jan</u>	<u>Feb.</u>	<u>March</u>	<u>April</u>	<u>July</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	Parameter Max. Limits
				<u>May</u> <u>June</u>	<u>Aug.</u> <u>Sept.</u>				
pH	8.1	7.7	8.1	8.1	-0-	6.4	7.5	7.8	6.0 - 9.0 Unit
Oil & Grease	8.2	3.2	2.4	9.4	-0-	12.2	4.7	2.2	10 - 15 mg/l
Phenols	<0.05	<0.05	<0.05	<0.2	-0-	<0.01	<0.05	.63	1.0 mg/l
Turbidity	464	248	168	337	-0-	94	76	97	None
Temperature	63	72	60	60	-0-	77	61	60	100 ^o Max

MONTHLY
GALLONS DISCHARGED

January	8,100,000
February	2,700,000
March	8,800,000
April, May, June	3,661,200
July, Aug. Sept.	-0-
October	2,325,000
November	5,500,000
December	3,702,344

GOLDEN EAGLE PAPER COMPANY, INC.

1984 YEARLY SUMMARY

RAINWATER DISCHARGES

ITEM	JAN.	FEB.	MARCH	APRIL MAY JUNE	JULY AUG. SEPT.	OCT.	NOV.	DEC.
ph.	-	-	-	-	-	-	-	7.5
Oil & Grease	-	-	-	-	-	-	-	0.9
Phenols	-	-	-	-	-	-	-	< 0.01
Turbidity	-	-	-	-	-	-	-	182
Temperature	-	-	-	-	-	-	-	55

MONTHLY
GALLONS DISCHARGED

January	-0-
February	-0-
March	-0-
April, May, June	-0-
July, Aug., Sept.	-0-
October	-0-
November	-0-
December	1,825,000

APPENDIX C

10-10-75

METHANE TESTS AND BORING LOGS
(Leroy Crandall and Associates, December, 1975)

GAS MEASUREMENT READINGS

<u>Boring No.</u>	<u>Date</u>	<u>Time</u>	<u>Reading on MSA Explosimeter</u>
1	11/19/75	1100*	10
	11/19/75	1415	100+
	11/20/75	0835	100+
2	11/18/75	1400*	100+
3	11/17/75	0900*	0
	11/18/75	0800	20
	11/19/75	0730	5
	11/19/75	1400	0
	11/20/75	0830	0
4	11/17/75	1530*	100+
5-A	11/18/75	1030*	5
	11/19/75	0730	100+
	11/19/75	1430	100+
5-B	11/19/75	1200*	10
	11/19/75	1420	100+
	11/20/75	0825	100+
5-C	No Readings Taken		
5-D	11/20/75	1115*	100+
6	11/18/75	0930*	0
	11/19/75	0735	5
	11/19/75	1425	10
	11/20/75	0820	25
	11/20/75	1120	45
	11/20/75	1345	30

*At completion of drilling.

- Notes: 1. Readings taken in the drilled holes at a depth of approximately two feet below the ground surface.
2. Readings in excess of 60 indicate a potentially explosive mixture.
3. The upper soils in Borings 5-A, 5-B, and 6 were impregnated with oil.



BENCH MARK FOR BORING ELEV'S
SPIKE AT C & G OF MAIN ST
& TORRANCE BLVD. ASSUMED
ELEV 1100.0

MAIN

ST

DRAINAGE CHANNEL - 8'± DEEP
(APPROX. LOCATION)

PAVING

SULFUR
RECOV.

29TK1

FUEL
LOADING
FACILITY

INFORMATION
CENTER

FLARE
STACK

(250' HIGH)

PILES OF LOOSE
DUMPED FILL

THERMAL
OXIDIZER

(100' HIGH)

PIPE SUPPORTS

TORRANCE BLVD

KEY:

- 3 BORING LOCATION & NO.
- (2') DEPTH OF FILL
- REPORTED LIMITS OF LANDFILL
- - - APPROX. LIMITS OF LANDFILL (REVISED)

(27') 1

80014
22TK7

(2')
3

80016
22TK8

EXISTING TANKS

55005
47TK1

55004
30TK2

REFERENCE
OVERALL PLOT PLAN (DATED 9-9-75) BY
THE FLUOR CORP

PLOT PLAN

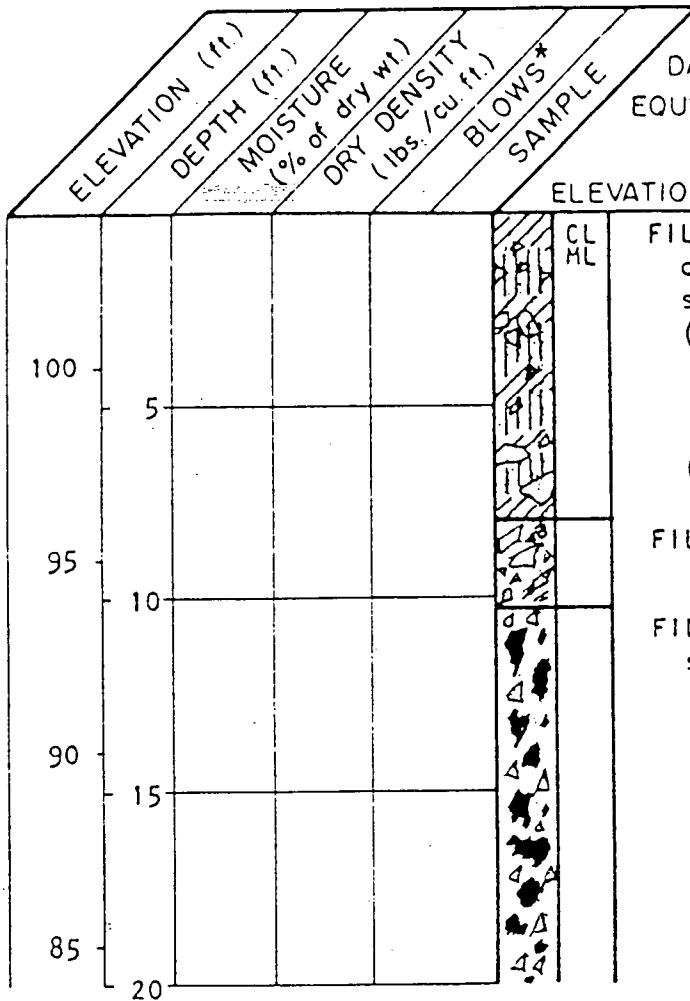
SCALE 1"=100'

LEROY CRANDALL AND ASSOCIATES

PLATE 1

BORING I

DATE DRILLED: November 18 & 19, 1975
EQUIPMENT USED: 24"-Diameter Bucket to 27'
16"-Diameter Bucket from 27' to 45'



FILL - CLAY and SILT - about 40% chunks of concrete and asphaltic paving to 8" in size, mottled brown
(GAD USED TO PENETRATE)

(CORING BUCKET USED TO PENETRATE FROM 7' TO 8')

FILL - ORGANIC - wood, plastic, tin, etc.

FILL - INORGANIC - asphaltic paving, about 25% soil, some pieces of concrete

(CONTINUED ON FOLLOWING PLATE)

*Number of blows required to drive LC&A sampler 12":

Driving Weight	Stroke
0' to 26' = 1600 lbs.	1'
below 26' = 730 lbs.	1'

**Elevations refer to assumed datum; see Plate 1 for location and elevation of benchmark.

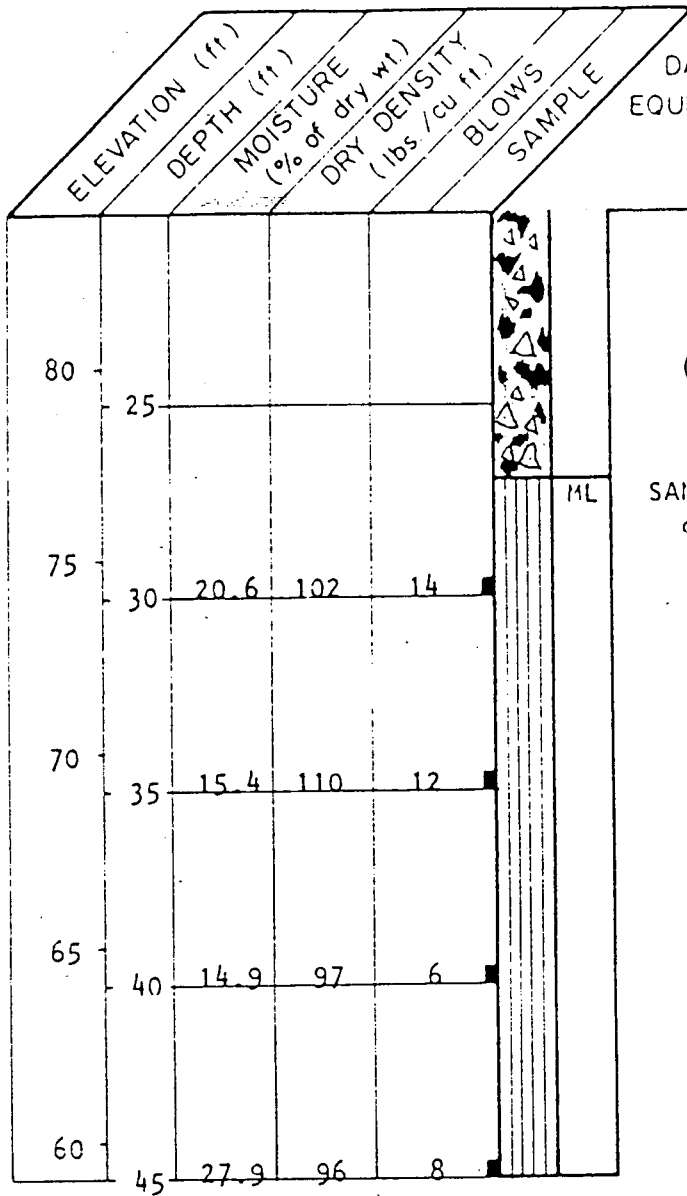
LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

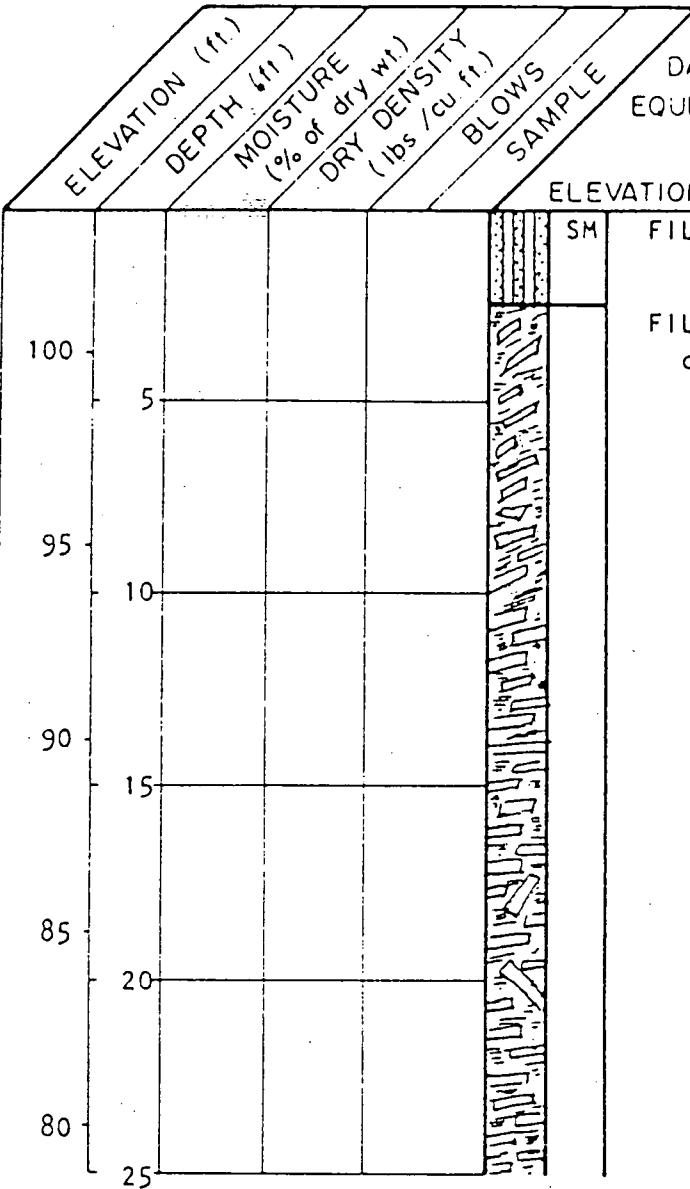
DATE 12-1-75 BY J.E. CRANDALL

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



NOTE: Water not encountered. Raveling from 0' to 29' (to 2½' in diameter).

LOG OF BORING



BORING 2
 DATE DRILLED November 18, 1975
 EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 103.8

FILL - SILTY SAND - fine, mottled brown

FILL - ORGANIC - predominantly wood and paper, odorous

(CONTINUED ON FOLLOWING PLATE)

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu ft.)	BLOWS	SAMPLE
75	30				SP
		17.9	112	4	
70	35				ML
		15.5	104	7	
65	40				
		20.8	103	10	
60	45				
55	50	25.6	98	11	

BORING 2 (CONTINUED)
 DATE DRILLED: November 18, 1975
 EQUIPMENT USED: 24"-Diameter Bucket

SAND - fine, light grey

SANDY SILT - some Clay, light greyish-brown

NOTE: Water not encountered. Raveling from 3' to 30' (to 3' in diameter).

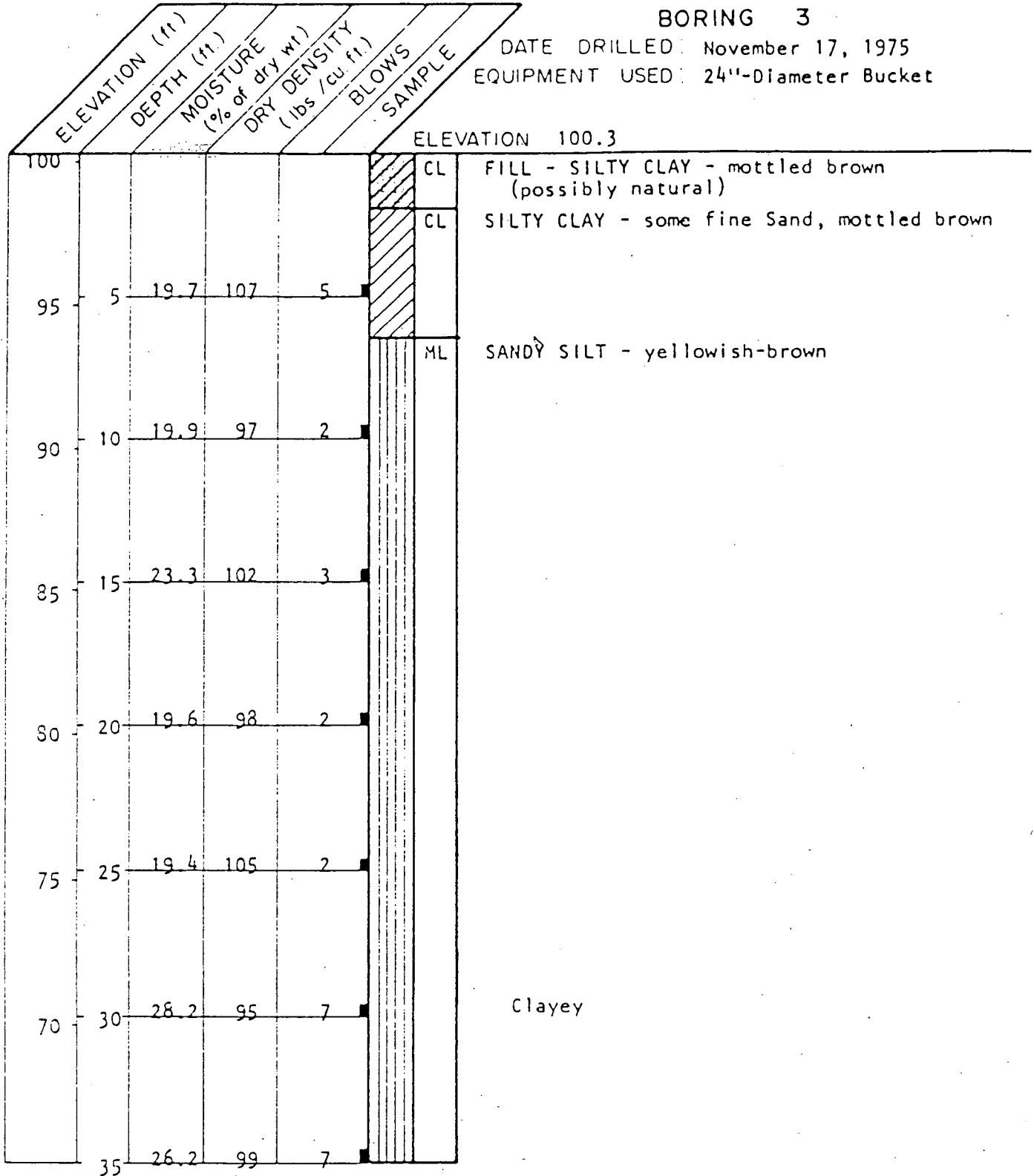
LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

BORING 3

DATE DRILLED: November 17, 1975
EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



NOTE: Water not encountered. No caving.

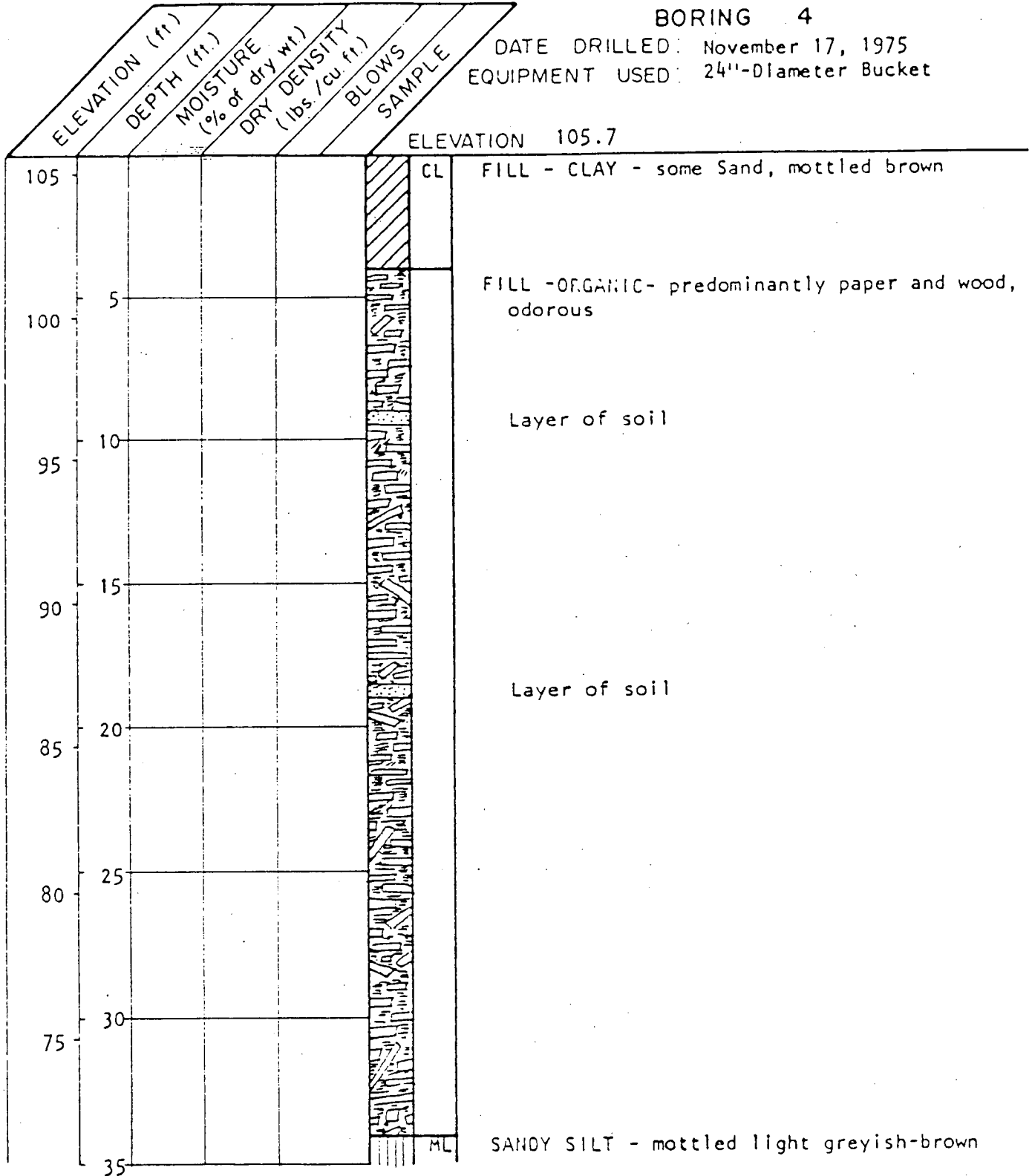
LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

BORING 4

DATE DRILLED: November 17, 1975
EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



(CONTINUED ON FOLLOWING PLATE)

LOG OF BORING

BORING 4 (CONTINUED)

DATE DRILLED: November 17, 1975
EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu ft.)	BLOWS	SAMPLE
70	12.8	115	14		
65	40	23.7	98	7	
60	45	19.2	100	9	
55	50	21.3	96	12	
50	55	17.9	113	5	CL
45	60				ML
40	65	18.9	98	3	SP
70	29.2	96	8		

SILTY CLAY - some fine Sand, light olive grey

SANDY SILT - light olive grey

SAND - fine, light brown

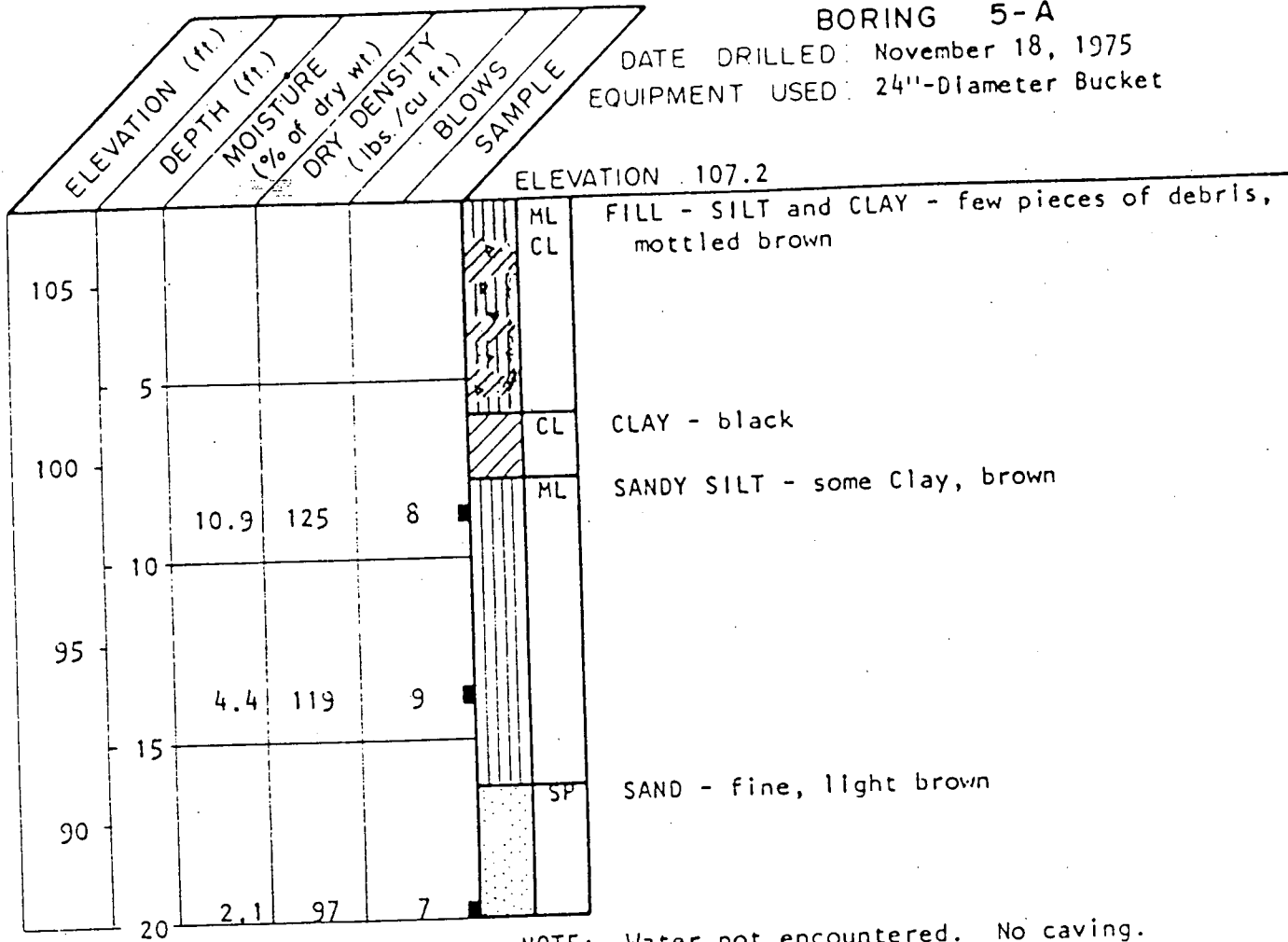
NOTE: Water level at 68½' at 7:00 A.M. on 11/18/75.
Heavy raveling from 4' to 34'.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

BORING 5-A
 DATE DRILLED: November 18, 1975
 EQUIPMENT USED: 24"-Diameter Bucket

NOTE THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



NOTE: Water not encountered. No caving.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

PLATE A-6

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu ft.)	BLOWS	SAMPLE
105	5				ML CL
100	10				CL ML

ELEVATION 107.8

BORING 5-B
DATE DRILLED: November 19, 1975
EQUIPMENT USED: 24"-Diameter Bucket

FILL - SILT and CLAY - mottled brown

CLAY - black

SANDY SILT - some Clay, brown

NOTE: Water not encountered. No caving.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

BORING 5-C

DATE DRILLED: November 19, 1975
EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs /cu. ft.)	BLOWS	SAMPLE	ELEVATION 106.0
105					ML CL	FILL - SILT and CLAY - mottled brown
	5				CL	CLAY - black
100					ML	SANDY SILT - some Clay, brown Light brown
10						

NOTE: Water not encountered. No caving.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

OB 75 7 DAT 2 25 O.E. 4 IKD A

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)		DEPTH (ft.)		MOISTURE (% of dry wt.)		DRY DENSITY (lbs./cu ft.)		BLOWS		SAMPLE	
100		5									
95		10									
90		15									
85		20									
80		25									
75		30									

ELEVATION 104.6

ML
CL

FILL - SILT and CLAY - mottled brown

FILL -ORGANIC- predominantly wood and paper,
odorous

Layer of soil

(CONTINUED ON FOLLOWING PLATE)

LOG OF BORING

JOB 75-177 DAT 12-25-75 0. 4 HKC 1/2 1/2

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu ft.)	BLOWS	SAMPLE
70	35				
65	40	22.4	99	9	HL
60	45	23.8	96	3	
55	50	16.6	117	8	

BORING 5-D (CONTINUED)
DATE DRILLED November 19 & 20, 1975
EQUIPMENT USED: 24"-Diameter Bucket

SANDY SILT - light bluish-grey

Light greyish-brown

NOTE: Water not encountered. Raveling from 6' to 38' (to 2½' in diameter).

LOG OF BORING

BORING 6

DATE DRILLED November 18, 1975
EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.















ELEVATION (ft.)		DEPTH (ft.)		MOISTURE (% of dry wt.)		DRY DENSITY (lbs./cu ft.)		BLOWS		SAMPLE	
ELEVATION 104.4											
										ML	FILL - SANDY SILT - some Clay, mottled brown
100	5	18.9	109	2						CL	SILTY CLAY - dark brown
										ML	SANDY SILT - light brown
95	10	11.5	109	7							
90	15	22.4	103	6							
85	20	13.6	112	7							
80	25	12.5	105	5							
75	30										
70	35	27.0	95	7							

NOTE: Water not encountered. No caving.

LOG OF BORING

LEROY GRANDALL AND ASSOCIATES

PLATE A-13

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	 GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			 GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	 GM	Silty gravels, gravel-sand-silt mixtures.
			 GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	 SW	Well graded sands, gravelly sands, little or no fines.
			 SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)	 SM	Silty sands, sand-silt mixtures.
			 SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		 ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			 CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			 OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)		 MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			 CH	Inorganic clays of high plasticity, fat clays.
			 OH	Organic clays of medium to high plasticity, organic silts.
			HIGHLY ORGANIC SOILS	

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

P A R T I C L E S I Z E L I M I T S									
SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS		
	FINE	MEDIUM	COARSE	FINE	COARSE				
	NO. 200	NO. 40	NO. 10	NO. 4	3/4 in.	3 in.	(12 in.)		
	U. S. S T A N D A R D S I E V E S I Z E								

UNIFIED SOIL CLASSIFICATION SYSTEM

Reference:
 The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. I, March, 1953. (Revised April, 1960)

LEROY CRANDALL & ASSOCIATES

APPENDIX D



December 10, 1984

Lab No. P84-11-450
Revised Report 12/14/84Woodward-Clyde Consultants
203 North Golden Circle Drive
Santa Ana, California 92705

Attention: Mr. George Linkletter

GAS CHROMATOGRAPHY/MASS SPECTROMETRY RESULTS - EPA METHOD 625

This method will analyze for all priority pollutants stated in the EPA Method 625 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057. In addition, the five most prominent peaks appearing in the reconstructed ion chromatogram (RIC) above the detection limit will be quantitated based on the nearest internal standard. Hard copies of RICs and compound identifications are available upon request.

BC Log Number P84-11-450-1: MW-2 GE001-WDate Sampled: November 29, 1984
Date Received: November 29, 1984
Date Extracted: December 5, 1984CompoundConcentration: µg/L

EXTRACTABLE NON-PRIORITY POLLUTANTS:

Pentachlorophenol

11

No other extractable priority pollutants were observed and the following detection limits apply:

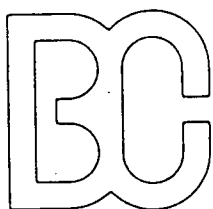
CompoundConcentration: µg/L

All Base-Neutrals (except those listed below)	10
All Acids (except those listed below)	10
Dimethylphthalate	25
Benzidine	40
Di-n-Butylphthalate	50
N-Nitrosodimethylamine	80
N-Nitrosodi-n-propylamine	40
2,4-Dinitrophenol	25
4,6-Dinitro-o-Cresol	50
4-Nitrophenol	25

Reported by:

Edward Wilson

Laboratory Director



BROWN AND CALDWELL

CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
373 SOUTH FAIR OAKS AVE.
PASADENA, CA 91105
PHONE (818) 795-7553
(213) 681-4655

P84-11-450

Log No.

Date Sampled 11/29/84
Date Received 11/29/84
Date Reported 12/10/84

Reported To:

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: George Linkletter


Laboratory Director

cc.

Log No.	Sample Description
11-450-1	MW-2 GE001-W

Concentration mg/L						
	11-450-1					
pH, Units	7.6					
Conductivity, μ hos/cm	1100					
Sulfate	450					
Sulfite	< 1.0					
Sulfide	< 0.1					
Nitrate as NO_3	0.91					
Nitrite as NO_2	2.9					
Chloride	5.6					
Arsenic	< 0.003					
Chromium	< 0.0008					
Cadmium	< 0.0001					
Copper	< 0.011					
Selenium	< 0.005					
Vanadium	< 0.020					
Calcium	110					

Page 2 of 2

[illegible]



December 10, 1984

P84-11-449

Woodward-Clyde Consultants
203 North Golden Circle Drive
Santa Ana, California 92705

Attention: Mr. George Linkletter

Inhalation Toxicities

Substance is hazardous if one or more of its head space vapor constituents are present in concentrations exceeding their respective 8 hour inhalation LC50 or LCLo values. None of the samples are hazardous based on these inhalation toxicity criteria. Concentrations determined as per EPA SW-846 #5020.

P84-11-449-2: MW-2 GE-02-GW-08Results8 Hour Inhalation Lethal Concentrations,
rat or mouse^a

<u>Substance</u>	<u>LCLo</u>	<u>LC50 (8-hr)</u>	<u>Concn. Found, ppm</u>
Methylcyclohexane	non-toxic	---	170
Methylpentanol	1000	---	100
Heptane	non-toxic	---	160
Cyclic C8 hydrocarbon	non-toxic	---	100
Cyclic C9 hydrocarbon	non-toxic	---	130
C9 Hydrocarbon	non-toxic	---	100
Trimethylhexane	non-toxic	---	130
Toluene	2000	5320	3.3
Ethylbenzene	4000	---	4.6
Xylenes	--	2500	36

^a Reference: 1980 Registry of Toxic Substances, National Institute for Occupational Safety and Health (NIOSH), U.S. Dept. of Health and Human Services, February, 1982.

P84-11-449-1: MW-2 GE-02-GW-038 Hour Inhalation Lethal Concentrations,
rat or mouse^a

<u>Substance</u>	<u>LCLo</u>	<u>LC50 (8-hr)</u>	<u>Concn. Found, ppm</u>
None Detected	non-toxic	---	< 2 ^a
		---	< 20

P84-11-449-3: MW-2 GE-02-GW-12

Results

8 Hour Inhalation Lethal Concentrations,
rat or mouse^a

<u>Substance</u>	<u>LCLo</u>	<u>LC50 (8-hr)</u>	<u>Concn. Found, ppm</u>
None Detected	non-toxic	---	< 2 ^a < 20 ^b

P84-11-449-4: MW-2 GW-02-GW-14

8 Hour Inhalation Lethal Concentrations,
rat or mouse^a

<u>Substance</u>	<u>LCLo</u>	<u>LC50 (8-hr)</u>	<u>Concn. Found, ppm</u>
None Detected	non-toxic	---	< 2 ^a < 20 ^b

^a Volatile Priority Pollutants

^b Volatile Non-priority Pollutants

Reported by:



Edward Wilson
Laboratory Director

lah

BROWN AND CALDWELL

**CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION**
373 SOUTH FAIR OAKS AVE.
PASADENA, CA 91105
PHONE (818) 795-7553
(213) 681-4655

Log No. P84-11-449

Date Sampled 11/27/84
Date Received 11/29/84
Date Reported 12/10/84

Reported To:

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

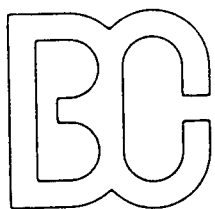
Attn: George Linkletter

L. A. L.
Laboratory Director

CC.

Log No.	Sample Description
11-449-1	MW-2 GE-02-GW-03
11 449-2	MW-2 GE-02-GW-08
11 449-3	MW-2 GE-02-GW-12

[illegible]



BROWN AND CALDWELL

CONSULTING ENGINEERS
ANALYTICAL SERVICES DIVISION
373 SOUTH FAIR OAKS AVE.
PASADENA, CA 91105
PHONE (818) 795-7553
(213) 681-4655

Log No.

P84-11-449

Date Sampled
Date Received
Date Reported

11/27/84
11/29/84
12/10/84

Revised Report

Reported To:

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: George Linkletter


Laboratory Director

cc.

Log No.	Sample Description
1-449-4	MW-2 GE-02-GW-14

Concentration mg/kg					
Oil & Grease	11-4 9-4	150			
Phenolics		< 1.0			
pH, Units		7.7			
Beryllium		< 0.62			
Cadmium		< 0.57			
Chromium		12.2			
Copper		16			
Lead		< 4.0			
Nickel		10			
Silver		< 1.2			
Tellurium		< 10			
Zinc		34			
Antimony		< 11			
Arsenic		4.6			
Selenium		< 1.5			

Woodward-Clyde

Log No. P84-11-449

Date Reported

Page 2 of 2

Concentration mg/kg

[illegible]

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

December 10, 1984

Lab No. P84-11-449

Revised Report 12/14/84

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: George Linkletter

GAS CHROMATOGRAPHY/MASS SPECTROMETRY RESULTS - EPA METHOD 8240

This method will analyze for all priority pollutants stated in the EPA Method 8240 of the July, 1982, Test Methods for Evaluating Solid Waste, SW-846. In addition, all other peaks appearing in the reconstructed ion chromatogram (RIC) above the detection limit will be quantitated based on the nearest internal standard. Hard copies of RICs and compound identifications are available upon request.

BC Log Number P84-11-449-4: MW-2 GE-02-GW-14

Date Sampled: 11/27/84
Date Received: 11/29/84
Date Extracted: 12/05/84

Compound

Concentration: mg/kg

PURGEABLE PRIORITY POLLUTANTS:

Acrolein	< 3
Acrylonitrile	< 3
Other purgeable priority pollutants	< 0.3

GAS CHROMATOGRAPHY/MASS SPECTROMETRY RESULTS - EPA METHOD 8270

This method will analyze for all priority pollutants stated in the EPA Method 8270 of the July, 1982, Test Methods for Evaluating Solid Waste, SW-846. In addition, all other peaks appearing in the reconstructed ion chromatogram (RIC) above the detection limit will be quantitated based on the nearest internal standard. Hard copies of RICs and compound identifications are available upon request.

BC Log Number P84-11-449-4: MW-2 GE-02-GW-14

BASE-NEUTRAL/ACID EXTRACTABLES:

Date Sampled: 11/27/84
Date Received: 11/29/84
Date Extracted: 12/06/84

Compound

Concentration: mg/kg

EXTRACTABLE PRIORITY POLLUTANTS:

None Detected

1

No extractable priority pollutants were observed, and the following detection limits apply:

Compound

Concentration: mg/kg

All Base - Neutrals (except those listed below)

1

All Acids (except those listed below)

1

Dimethylphthalate

3

Benzidine

4

Di-n-Butylphthalate

5

N-Nitrosodimethylamine

8

N-Nitrosodi-n-propylamine

4

2,4-Dinitrophenol

3

4,6-Dinitro-o-Cresol

5

4-Nitrophenol

3

Reported by



Edward Wilson

Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

December 10, 1984

Lab No. P84-11-449

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: George Linkletter

PRIORITY POLLUTANT PESTICIDES RESULTS OF SOIL

Date Sampled: 11/27/84
Date Received: 11/29/84
Date Extracted: 12/05/84

<u>Log Number</u>	<u>Sample Description</u>	<u>Results</u> <u>(Concentration: mg/kg)</u>
11-449-4	MW-2 GE-02-GW-14	None Detected

The following compounds would have been reported had they appeared at or above their respective detection limits as indicated below (concentration: mg/kg):


ORGANOCHLORINE PESTICIDES

Aldrin	0.02	Endosulfan Sulfate	0.05
BHC (mixed isomers)	0.02	Endrin	0.05
DDT (mixed isomers)	0.05	Endrin Aldehyde	0.05
DDE (mixed isomers)	0.02	Heptachlor	0.02
DDD (mixed isomers)	0.02	Heptachlor Epoxide	0.02
Dieldrin	0.02	Chlordane	0.15
Endosulfan I	0.02	Toxaphene	1
Endosulfan II	0.02	Methoxychlor	0.15

POLYCHLORINATED BIPHENYLS

Aroclors 1016-1262 1

Reported by


Edward Wilson
Laboratory Director

41856A

SAMPLE IDENTIFICATION LOG

SAMPLE No.

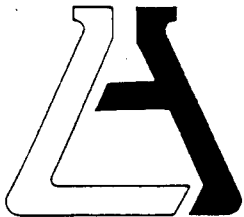
SAMPLE

DEPTH

01	GE-02-GW-01	2
02	GE-02-GW-02	11 7
03	GE-02-GW-03	11 12
04	GE-02-GW-04	11 17
05	GE-02-GW-05	11 22
06	GE-02-GW-06	11 27
07	GE-02-GW-07	11 32
08	GE-02-GW-08	11 37
09	GE-02-GW-09	11 42
10	GE-02-GW-10	11 47
11	GE-02-GW-11	11 52
12	GE-02-GW-12	11 57
13	GE-02-GW-13*	62
14	GE-02-GW-14	67
15	GE-02-GW-15	72
16	GE-02-GW-16	77
17	GE-02-GW-17	82

* Water encountered at 62'

APPENDIX E



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Bright & Associates
1200 N. Jefferson
Unit B
Anaheim, Ca 92807
Attn: Art

LAB NO. F02712
REPORTED 2/27/85

SAMPLE

Soil

RECEIVED 2/21/85

IDENTIFICATION

Golden Eagle Refinery


BASED ON SAMPLE

As submitted

HYDROCARBONS

Ger-1-3	17 ppm
Ger-2-2	43 ppm
Ger-3-2	4 ppm
Ger-4-0	980 ppm
Ger-4-3	11 ppm
Ger-5-3	9 ppm
Ger-6-2	13 ppm
Ger-7-2	820 ppm
Ger-7-4	220 ppm
Ger-8-2	10 ppm

ASSOCIATED LABORATORIES


Edward S. Behare, Ph.D.

ESB/ch

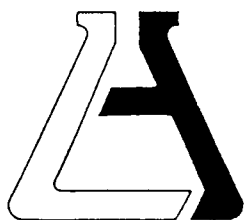
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Microbiological •

Environmental •

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ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Bright & Associates
1200 N. Jefferson
Unit B
Anaheim, Ca 92807
Attn: Art

LAB NO. F02711
REPORTED 2/27/85

SAMPLE Soil
IDENTIFICATION Golden Eagle Refinery
BASED ON SAMPLE As submitted

RECEIVED 2/21/85

HYDROCARBONS

Ger-9-2	24 ppm
Ger-10-2	10 ppm
Ger-10-4	190 ppm
Ger-11-3	1000 ppm
Ger-12-3	50 ppm
Ger-13-2	52 ppm
Ger-14-2	4400 ppm
Ger-14-4	950 ppm
Ger-15-2	41 ppm
Ger-16-0	5900 ppm

ASSOCIATED LABORATORIES

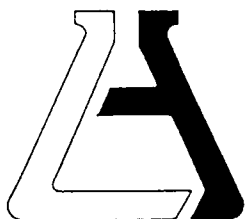
Edward S. Behare, Ph.D.

ESB/ch

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806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Bright & Associates
1200 N. Jefferson
Unit B
Anaheim, Ca. 92807
Attn: A. R. Hamrighausen

LAB NO. F02710
REPORTED 2/26/85

SAMPLE Soil
IDENTIFICATION Golden Eagle Refinery
BASED ON SAMPLE As Submitted

RECEIVED 2/21/85

HYDROCARBONS

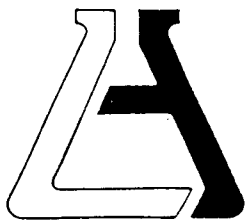
Ger-16-2	410 ppm
Ger-17-1	5 ppm
Ger-18-0	21 ppm
Ger-19-3	25 ppm
Ger-19-4	14 ppm
Ger-20-0	890 ppm
Ger-20-2	590 ppm
Ger-20-4	48 ppm

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806 North Batavia - Orange, California 92668 - 714/771-6900

CLIENT

Bright & Associates
1200 N. Jefferson
Unit B
Anaheim, Ca 92807
Attn: Art

LAB NO. F02741
REPORTED 2/27/85

SAMPLE Soil
IDENTIFICATION Golden Eagle Refinery
BASED ON SAMPLE As submitted

RECEIVED 2/22/85

HYDROCARBONS

Gec-1-1	310 ppm
Gec-2-1	5 ppm
Gec-3-1	190 ppm
Gec-4-1	790 ppm
Gec-T-1	6600 ppm

ASSOCIATED LABORATORIES


Edward S. Behare, Ph.D.

ESB/ch

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Bright + Associates

Chain of Custody Record

PROJECT NO. 222		PROJECT NAME Golden Eagle Refinery		SAMPLE TYPES												OTHER		NUMBER OF CONTAINERS	REMARKS
SAMPLERS: (Signature) <i>CR Hennighausen</i>				General Inorganic	Metals	Nutrients	Oil & Grease	Cyanide	Organics	Solids-Inorganics	Volatile Organics	Fuel	Oil	Industrial Hygiene	Total Hydrocarbons				
STATION NUMBER	DATE	TIME	STATION LOCATION																
GER-1-3	2/20/85	1130	Soil Sampling #1												X	1			
GER-2-2	"	1140	" " #2												X	1			
GER-3-2	"	1150	" " #3												X	1			
GER-4-0	"	1215	" " #4												X	1			
GER-4-3	"	1215	" " #4												X	1			
GER-5-3	"	1400	" " #5												X	1			
GER-6-2	"	1230	" " #6												X	1			
GER-7-2	"	1330	" " #7												X	1			
GER-7-4	"	1330	" " #7												X	1			
GER-8-2	"	1300	" " #8												X	1			
															TOTAL NUMBER OF CONTAINERS	10			
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)									
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature) <i>CR Hennighausen</i>		DATE/TIME 2/21/85 930		RECEIVED BY: (Signature)									
METHOD OF SHIPMENT: Hand carried				SHIPPED BY: (Signature)		COURIER: (Signature)		RECEIVED FOR LAB BY: (Signature)				DATE/TIME							

Bright & Associates

Chain of Custody Record

PROJECT NO. 222		PROJECT NAME Golden Eagle Refinery			SAMPLE TYPES												OTHER		NUMBER OF CONTAINERS	REMARKS
SAMPLERS: (Signature) <i>CR Hommighausen</i>					General Inorganic	Metals	Nutrients	Oil & Grease	Cyanide	Organics	Solids-Inorganics	Volatile Organics	Fuel	Oil	Industrial Hygiene	Total Hydrocarbons				
STATION NUMBER	DATE	TIME	STATION LOCATION																	
GER-9-2	2/20/85	1345	Soil Sampling #9													X	1			
GER-10-2	"	1415	" " #10													X	1			
GER-10-4	"	1415	" " #10													X	1			
GER-11-3	"	1430	" " #11													X	1			
GER-12-3	"	1515	" " #12													X	1			
GER-13-2	"	1530	" " #13													X	1			
GER-14-2	"	1545	" " #14													X	1			
GER-14-4	"	1545	" " #14													X	1			
GER-15-2	"	950	" " #15													X	1			
GER-16-0	"	1010	" " #16													X	1			
TOTAL NUMBER OF CONTAINERS																10				
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)										
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)										
METHOD OF SHIPMENT: Hand carried				SHIPPED BY: (Signature)		COURIER: (Signature)		RECEIVED FOR LAB BY: (Signature)		DATE/TIME										
						<i>CR Hommighausen</i>		2/21/85 930												

Chain of Custody Record

PROJECT NO. 222		PROJECT NAME Golden Eagle Refinery		SAMPLE TYPES												OTHER		NUMBER OF CONTAINERS	REMARKS
SAMPLERS: (Signature) <i>CR Hemmighausen</i>				General Inorganic	Metals	Nutrients	Oil & Grease	Cyanide	Organics	Solids-Inorganics	Volatile Organics	Fuel	Oil	Industrial Hygiene	Total Hydrocarbons				
STATION NUMBER	DATE	TIME	STATION LOCATION																
GER-16-2	2/20/85	1010	Soil Sampling #16												X	1			
GER-17-1	"	1030	" " #17												X	1			
GER-18-0	"	1100	" " #18												X	1			
GER-19-3	"	1200	" " #19												X	1			
GER-19-4	"	1200	" " #19												X	1			
GER-20-0	#	1445	" " #20												X	1			
GER-20-2	"	1445	" " #20												X	1			
GER-20-4	"	1445	" " #20												X	1			
												TOTAL NUMBER OF CONTAINERS		8					
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)									
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature) <i>CR Hemmighausen</i>		DATE/TIME 2/21/85 930		RECEIVED BY: (Signature)									
METHOD OF SHIPMENT: Hand carried				SHIPPED BY: (Signature)		COURIER: (Signature)		RECEIVED FOR LAB BY: (Signature)				DATE/TIME							

APPENDIX F

WATER QUALITY DATA FOR THE LAST THREE YEARS
FROM LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
WATER QUALITY MONITORING WELLS

(Wells number 794C, 819, 836A, 857M, & 858D)

STORET RETRIEVAL DATE 85/02/21

794 C 4S/14W-01F03

33-51 23.0 118 18-07.0 2

COASTAL PLAIN

06037 CALIFORNIA

LOS ANGELES

CALIFORNIA

140600

LOS ANGELES

21CALAFD

790721

DEPTH 0 112.7'

8/83

/TYPA/AMBNT/WELL

INITIAL DATE				82/06/25	83/06/14	84/06/28
INITIAL TIME-DEPTH-BOTTOM				1040	1100	0650
00010	WATER	TEMP	CENT	21.1	27.8	20.6
00011	WATER	TEMP	FAHN	70.0	82.0	69.0
00095	CNDUCTVY	AT 25C	MICROMHO	411	381	501
00403	LAB	PH	SU	7.6	7.8	7.8
00440	HCO3 ION	HCO3	MG/L	145	116	123
00608	NH3+NH4-	N DISS	MG/L	0.020	0.100	0.010 K
00615	NO2-N	TOTAL	MG/L	0.010 K		1.300
00620	NO3-N	TOTAL	MG/L	0.700	1.040	0.400
00680	T ORG C	C	MG/L	3.5	3.2	
00900	TOT HARD	CAC03	MG/L	109	83	148
00916	CALCIUM	CA-TOT	MG/L	30.2	23.0	41.2
00927	MGNSIUM	MG,TOT	MG/L	8.2	7.0	10.8
00929	SODIUM	NA,TOT	MG/L	32.50	43.00	43.60
00937	PTSSIUM	K,TOT	MG/L	3.60	4.10	4.00
00940	CHLORIDE	TOTAL	MG/L	85	25	50
00945	SULFATE	SO4-TOT	MG/L	20	32	42
00951	FLUORIDE	F,TOTAL	MG/L	0.30	0.96	0.40
01022	BORON	B,TOT	UG/L	440	60	66
01045	IRON	FE,TOT	UG/L	38800	50	38
01055	MANGNESE	MN	UG/L	900.0	20.0 K	10.0 K
70300	RESIDUE	DISS-180 C	MG/L	228	280	286
70507	PHOS-T	ORTHO	MG/L P	0.020	0.390	0.100

STORET RETRIEVAL DATE 85/02/21

819 4S/13W-30C01

33 48 08.0 118 17 01.0 2

COASTAL PLAIN

06037 CALIFORNIA

LOS ANGELES

CALIFORNIA

140600

LOS ANGELES

21CALAFD

790721

DEPTH

0 not available

/TYPA/AMBNT/WELL

INITIAL DATE				83/06/14	84/06/14
INITIAL TIME-DEPTH-BOTTOM				1300	0800
00010	WATER	TEMP	CENT	22.2	19.4
00011	WATER	TEMP	FAHN	72.0	67.0
00095	CNDUCTVY	AT 25C	MICROMHO	610	624
00403	LAB	PH	SU	7.9	7.7
00440	HCO3 ION	HCO3	MG/L	140	136
00608	NH3+NH4-	N DISS	MG/L	0.150	0.010 K
00615	NO2-N	TOTAL	MG/L		0.020 K
00620	NO3-N	TOTAL	MG/L	1.710	0.600
00680	T ORG C	C	MG/L	2.7	
00900	TOT HARD	CACO3	MG/L	160	192
00916	CALCIUM	CA-TOT	MG/L	36.0	47.4
00927	MGNSIUM	MG,TOT	MG/L	15.0	17.6
00929	SODIUM	NA,TOT	MG/L	50.00	62.60
00937	PTSSIUM	K,TOT	MG/L	6.50	3.80
00940	CHLORIDE	TOTAL	MG/L	55	60
00945	SULFATE	SO4-TOT	MG/L	51	97
00951	FLUORIDE	F,TOTAL	MG/L	0.41	0.20
01022	BORON	B,TOT	UG/L	70	250
01045	IRON	FE,TOT	UG/L	50	30 K
01055	MANGNESE	MN	UG/L	20.0 K	10.0 K
70300	RESIDUE	DISS-130 C	MG/L	419	372
70507	PHOS-T	ORTHO	MG/L P	1.630	0.100

STORET RETRIEVAL DATE 85/02/21

836 A 4S/13W-17D01

33 49 53.0 118 16 37.0 2

COASTAL PLAIN

06037 CALIFORNIA

LOS ANGELES

CALIFORNIA

140600

LOS ANGELES

21CALAFD

790721

DEPTH

0 99.9'

8/83

/TYPA/AMBNT/WELL

INITIAL DATE				82/06/22	83/06/15	84/06/14
INITIAL TIME-DEPTH-BOTTOM				1435		1545
00010	WATER	TEMP	CENT			25.0
00011	WATER	TEMP	FAHN			77.0
00095	CNDUCTVY	AT 25C	MICROMHO	400	510	413
00403	LAB	PH	SU	8.1	8.3	8.0
00440	HCO3 ION	HCO3	MG/L	186	122	195
00608	NH3+NH4-	N DISS	MG/L	0.420	0.490	0.400
00615	NO2-N	TOTAL	MG/L	0.010 K		0.020 K
00620	NO3-N	TOTAL	MG/L	0.210	1.590	0.100
00680	T ORG C	C	MG/L	0.2	2.7	
00900	TOT HARD	CAC03	MG/L	98	111	106
00916	CALCIUM	CA-TOT	MG/L	29.9	28.0	28.9
00927	MGNSIUM	MG,TOT	MG/L	5.7	10.0	8.2
00929	SODIUM	NA,TOT	MG/L	48.00	48.00	53.20
00937	PTISSIUM	K,TOT	MG/L	3.20	3.70	3.50
00940	CHLORIDE	TOTAL	MG/L	75	23	25
00945	SULFATE	SO4-TOT	MG/L	9	60	10
00951	FLUORIDE	F,TOTAL	MG/L	0.10	0.70	0.30
01022	BORON	B,TOT	UG/L	200	75	220
01045	IRON	FE,TOT	UG/L	100 K	50	30 K
01055	MANGNESE	MN	UG/L	50.0 K	30.0 K	10.0 K
70300	RESIDUE	DISS-180 C	MG/L	236	305	228
70507	PHOS-T	ORTHO	MG/L P	0.010 K	1.210	0.100

STORET RETRIEVAL DATE 85/02/21

857 M 4S/13W-16R02

33 49 19.0 118 14.27.0 2

COASTAL PLAIN

06037 CALIFORNIA

LOS ANGELES

CALIFORNIA

140600

LOS ANGELES

21CALAFD

790721

DEPTH

0

108.2'

4/83

/TYPA/AMBNT/WELL

INITIAL DATE				82/06/22	83/06/15	84/06/14
INITIAL TIME-DEPTH-BOTTOM				1100	1445	0945
00010	WATER	TEMP	CENT	24.4	26.7	23.9
00011	WATER	TEMP	FAHN	76.0	80.0	75.0
00095	CNDUCTVY	AT 25C	MICROMHG	394	445	379
00403	LAB	PH	SU	7.9	7.9	7.8
00440	HCO3 ION	HCO3	MG/L	175	172	178
00608	NH3+NH4-	N DISS	MG/L	0.400	0.390	0.020
00615	NO2-N	TOTAL	MG/L	0.010 K		0.020 K
00620	NO3-N	TOTAL	MG/L	0.020	0.980	0.200
00680	T ORG C	C	MG/L	0.1	2.2	
00900	TOT HARD	CAC03	MG/L	94	105	102
00916	CALCIUM	CA-TOT	MG/L	30.7	27.0	29.6
00927	MGNSIUM	MG,TOT	MG/L	4.2	9.0	6.7
00929	SODIUM	NA,TOT	MG/L	44.00	45.00	48.00
00937	PTSSIUM	K,TOT	MG/L	2.80	2.50	2.90
00940	CHLORIDE	TOTAL	MG/L	78	21	24
00945	SULFATE	SO4-TOT	MG/L	7	21	8
00951	FLUORIDE	F,TOTAL	MG/L	0.10	0.34	0.30
01022	BORON	B,TOT	UG/L	210	50	210
01045	IRON	FE,TOT	UG/L	100 K	50	30 K
01055	MANGNESE	MN	UG/L	50.0 K	30.0 K	10.0 K
70300	RESIDUE	DISS-130 C	MG/L	212	298	216
70507	PHOS-T	ORTHC	MG/L P	0.010 K	0.590	0.100

STORET RETRIEVAL DATE 85/02/21

858 D 4S/13W-21J02

33 48 40.0 118 14 23.0 2

COASTAL PLAIN

06037 CALIFORNIA

LOS ANGELES

CALIFORNIA

140600

LOS ANGELES

21CALAFD

790721

DEPTH

0

111.0'

11/83

/TYPA/AMBNT/WELL

INITIAL DATE				32/06/22	83/06/15	84/06/14
INITIAL TIME-DEPTH-BOTTOM						
00010	WATER	TEMP	CENT	1040	1450	1015
00011	WATER	TEMP	FAHN	25.6	26.7	25.6
00095	CNDUCTVY	AT 25C	MICROMHO	78.0	80.0	78.0
00403	LAB	PH	SU	510	546	488
00440	HCO3 ION	HCO3	MG/L	7.8	8.2	8.0
00608	NH3+NH4-	N DISS	MG/L	164	168	172
00615	NO2-N	TOTAL	MG/L	0.520	0.330	0.500
00620	NO3-N	TOTAL	MG/L	0.010 K		0.020 K
00680	T ORG C	C	MG/L	0.460	1.340	0.200
00900	TOT HARD	CAC03	MG/L	1.6	1.6	
00916	CALCIUM	CA-TOT	MG/L	91	113	93
00927	MGNSIUM	MG,TOT	MG/L	29.7	31.0	26.5
00929	SODIUM	NA,TOT	MG/L	4.1	9.0	6.3
00937	PTSSIUM	K,TOT	MG/L	69.00	71.00	74.60
00940	CHLORIDE	TOTAL	MG/L	3.20	3.60	3.40
00945	SULFATE	SO4-TOT	MG/L	110	53	53
00951	FLUORIDE	F,TOTAL	MG/L	9	45	12
01022	BORON	B,TOT	UG/L	0.10	0.65	0.20
01045	IRON	FE,TOT	UG/L	200	50	150
01055	MANGNESE	MN	UG/L	100 K	40	30 K
70300	RESIDUE	DISS-130 C	MG/L	50.0 K	30.0 K	90.0
70507	PHOS-T	ORTHO	MG/L P	300	390	242
				0.010 K	2.380	0.100

APPENDIX G

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAD062080064	Manifest Document No. 800013	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address GOLDEN EAGLE REFINING CO. P.O. BOX 4886, CARSON, CALIF. 90749				A. State Manifest Document Number 84469153		
4. Generator's Phone (310) 622 213-3206860				B. State Generator's ID		
5. Transporter 1 Company Name MC KITTRICK MUD CO.		6. US EPA ID Number CAD042243493		C. State Transporter's ID 51957		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone 805-3255355		
9. Designated Facility Name and Site Address PETROLEUM WASTE INC LOKERN ROAD BUTTONWILLOW, CALIF		10. US EPA ID Number CAD980675276		E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility's ID		
				H. Facility's Phone 805-3255355		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers	13. Total Quantity	14. Unit
				No.	Type	Wt/Vol
a. HAZARDOUS WASTE, LIQ LIQUID, N.O.S. ORM-E NA 9189				1	T.T	50.00
b.						
c.						
d.						
Additional Descriptions for Materials Listed Above TANK BOTTOM WASTE				K. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information BEAT GLOVES & GOGGLES						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.						
Printed/Typed Name WAYNE S. CRAWFORD		Signature <i>Wayne S. Crawford</i>		Date Month Day Year 2 21 85		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>Richard Wood</i>		Date Month Day Year 2 21 85		
Printed/Typed Name RICHARD WOOD		Signature		Date Month Day Year		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date Month Day Year		
Printed/Typed Name		Signature		Date Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature		Date Month Day Year		

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

To: P.O. Box 400, Sacramento, CA 95802

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA006208006400012		Manifest Document No. 400012		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address GOLDEN EAGLE REFINING CO. P.O. BOX 4886, CARSON CALIF. 90749						A. State Manifest Document Number 84469151			
4. Generator's Phone (213) 3206860						B. State Generator's ID			
5. Transporter 1 Company Name McKITTRICK MUD CO.			6. US EPA ID Number CA0042243493			C. State Transporter's ID 52801			
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone 805-3255355			
9. Designated Facility Name and Site Address PETROLEUM WASTE INC. LOKERN ROAD BUTTONWILLOW, CALIF. CA0980675276						E. State Transporter's ID			
10. US EPA ID Number						F. Transporter's Phone			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity	
						No. Type		14. Unit Wt/Vol	
a. HAZARDOUS WASTE, LIQUID & SEDIMENT, N.O.S. ORM-E NA 9189						1 1-T		5000 G	
b.									
c.									
d.									
J. Additional Descriptions for Materials Listed Above TANK BOTTOM WASTE						K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information GLOVES & GOGGLES TANK 2026									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.									
Printed/Typed Name WAYNE S. CRAWFORD						Signature Wayne S. Crawford		Date Month Day Year 2 20 85	
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature Larry Tucker		Date Month Day Year 2 20 85	
18. Transporter 2 Acknowledgement or Receipt of Materials						Signature		Date Month Day Year	
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						Signature		Date Month Day Year	

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To: P.O. Box 400, Sacramento, CA 95802

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA00620800640001		Manifest Document No. 0001		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address OLDEN EAGLE REFINING CO. P.O. BOX 4886 CARSON, CALIF. 90749						A. State Manifest Document Number 84469158							
4. Generator's Phone (213) 3206860						B. State Generator's ID							
5. Transporter 1 Company Name MC KITTRICK MUD CO. CA0042243493						C. State Transporter's ID 52069							
6. US EPA ID Number						D. Transporter's Phone 805-3255355							
7. Transporter 2 Company Name						E. State Transporter's ID							
8. US EPA ID Number						F. Transporter's Phone							
9. Designated Facility Name and Site Address PETROLEUM WASTE INC. LOKERN ROAD BUTTONWILLOW, CALIF. CA0980675276						G. State Facility's ID							
10. US EPA ID Number						H. Facility's Phone 805-3255355							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit		15. Waste No.	
a. HAZARDOUS WASTE, LIQUID & SOLIDS, N.O.S. ORM-E NA 9189						No. Type 1 T-T		5000		G		241	
b.													
c.													
d.													
Additional Descriptions for Materials Listed Above TANK BOTTOM WASTE						K. Handling Codes for Wastes Listed Above							
15. Special Handling Instructions and Additional Information GLOVES & GOGGLES TANK #2026													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.													
Printed/Typed Name WAYNE S. CRAWFORD						Signature Wayne S. Crawford				Date 2/20/85			
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature Charlie Holt				Date 2/20/85			
Printed/Typed Name CHARLIE HOLT						Signature				Date			
18. Transporter 2 Acknowledgement or Receipt of Materials						Signature				Date			
Printed/Typed Name						Signature				Date			
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name						Signature				Date			

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To: P.O. Box 400, Sacramento, CA 95802

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAD06208006400010	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address GOLDEN EAGLE REFINING CO. P.O. BOX 4886, CARSON, CALIF. 90749			A. State Manifest Document Number 84469159			
4. Generator's Phone (213) 3206860			B. State Generator's ID			
5. Transporter 1 Company Name HEKITTRICK MUD CO.		6. US EPA ID Number CAD042243493	C. State Transporter's ID			
7. Transporter 2 Company Name		8. US EPA ID Number	D. Transporter's Phone (805) 3255355			
			E. State Transporter's ID			
			F. Transporter's Phone			
9. Designated Facility Name and Site Address PETROLEUM WASTE INC. LOKERN ROAD BUTTONWILLOW, CALIF.		10. US EPA ID Number CAD980675276	G. State Facility's ID CAD 980675276			
			H. Facility's Phone 805 - 3255355			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers	13. Total Quantity	14. Unit	15. Waste No.	
a. HAZARDOUS WASTE, LIQUID, N.O.S. ORM-E NA 9189		No. 1 Type TT	5000	G	241	
b.						
c.						
d.						
Additional Descriptions for Materials Listed Above TANK BOTTOM WASTE			K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information GLOVES & GOGGLES TANK 2024						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.						
Printed/Typed Name WAYNE S. CRAWFORD		Signature <i>Wayne S. Crawford</i>		Date 2/19/85		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>James Russell</i>		Date 2/19/85		
Printed/Typed Name JAMES RUSSELL		Signature		Date		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date		
Printed/Typed Name		Signature		Date		
19. Discrepancy Indication Space						
Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature		Date Month Day Year		

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To: P.O. Box 400, Sacramento, CA 95802

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address		OLDEN EAGLE REFINING CO. P.O. BOX 4886, CARSON, CALIF. 90749		A. State Manifest Document Number 84469157		
4. Generator's Phone (213) 3206860		5. Transporter 1 Company Name		B. State Generator's ID		
MC KITTRICK MUD CO.		6. US EPA ID Number		C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone		
9. Designated Facility Name and Site Address		10. US EPA ID Number		E. State Transporter's ID		
PETROLEUM WASTE INC. LOKERN ROAD BUTTONWILLOW, CALIF.		CAD 042243493		F. Transporter's Phone		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity		14. Unit
a. HAZARDOUS WASTE, LIQUID, N.O.S.		No.		Type		W/Vol
ORM-E AH 9189		1		TI 5000		G
b.						
c.						
d.						
Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above				
TANK BOTTOM WASTE						
15. Special Handling Instructions and Additional Information						
GLOVES & GOGGLES						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.						
Printed/Typed Name		Signature		Date		
WAYNE S. CRAWFORD		Wayne S. Crawford		Month Day Year 2 19 85		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date		
Printed/Typed Name		Signature		Date		
DICK KINCHELOE		Dick Kinchelo		Month Day Year 2 19 85		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date		
Printed/Typed Name		Signature		Date		
19. Discrepancy Indication Space						
Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.		Signature		Date		
Printed/Typed Name		Signature		Date		

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To: P.O. Box 400, Sacramento, CA 95802

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A	UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. <i>CAD06208006400010</i>		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.		
	3. Generator's Name and Mailing Address <i>GOLDEN EAGLE REFINING CO. P.O. BOX 4886, CARSON, CALIF</i>					A. State Manifest Document Number <i>84469160</i>					
GENERATOR	4. Generator's Phone <i>(213) 3206860</i>					B. State Generator's ID					
	5. Transporter 1 Company Name <i>FALCON DISPOSAL</i>					6. US EPA ID Number <i>CAD000048934</i>		C. State Transporter's ID			
	7. Transporter 2 Company Name					8. US EPA ID Number		D. Transporter's Phone			
	9. Designated Facility Name and Site Address <i>PETROLEUM WASTE INC. LOKERN ROAD BUTTONWILLOW, CALIF.</i>					10. US EPA ID Number <i>CAD980675276</i>		E. State Transporter's ID <i>55498</i>			
								F. Transporter's Phone <i>213-5908531</i>			
								G. State Facility's ID <i>CAD980675276</i>			
								H. Facility's Phone <i>805-3255355</i>			
	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)					12. Containers		13. Total Quantity		14. Unit	
						No. Type		Wt/Vol		I. Waste No.	
	TRANSPORTER	a. <i>HAZARDOUS WASTE, SOLID, N.O.S. - ORM-E NA 9189</i>					1. CM 20		Y		241
b.											
c.											
d.											
FACILITY	Additional Descriptions for Materials Listed Above <i>TANK BOTTOM WASTE - OIL 10% DIRT 90%</i>					K. Handling Codes for Wastes Listed Above					
	15. Special Handling Instructions and Additional Information <i>GLOVES & GLASSES</i>										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.											
TRANSPORTER	Printed/Typed Name <i>WAYNE S. CRAWFORD</i>					Signature <i>Wayne S. Crawford</i>					Date Month Day Year <i>2/13/85</i>
	17. Transporter 1 Acknowledgement of Receipt of Materials					Signature <i>HM Sheppard</i>					Date Month Day Year <i>2/13/85</i>
	18. Transporter 2 Acknowledgement or Receipt of Materials					Signature					Date Month Day Year
	Printed/Typed Name					Signature					Date Month Day Year
19. Discrepancy Indication Space											
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.											
Printed/Typed Name					Signature					Date Month Day Year	

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

To: P.O. Box 400, Sacramento, CA 95802

45109 00252 B

APPLICATION FOR CLOSURE
HAZARDOUS MATERIALS UNDERGROUND STORAGE
COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER-FACILITIES SANITATION DIVISION
550 SOUTH VERMONT LOS ANGELES, CALIFORNIA 90020

APPLICANT'S COPY

OWNER:

NAME Golden Eagle Refining Company Inc.

ADDRESS P.O. Box 4886 CITY Carson STATE CA ZIP 90749

FACILITY:

NAME Golden Eagle Refining Company Inc.

SITE ADDRESS 21000 S. Figueroa St. CITY Carson ZIP 90745

MAILING ADDRESS P.O. Box 4886 CITY Carson STATE CA ZIP 90749

CONTACT PERSON Burl Freeman TITLE V.P. Refining PHONE (213) 320-6860

CLOSURE REQUESTED:

☐ TEMPORARY (REFER TO CONDITIONS A AND B ON BACK OF THIS FORM)

EFFECTIVE DATE OF CLOSURE

DATE OPERATION WILL RESUME

☒ PERMANENT, TANK(S) REMOVAL DISPOSAL DESTINATION
(REFER TO CONDITIONS A AND C ON BACK OF THIS FORM)

☐ PERMANENT, TANK(S) IN PLACE
(REFER TO CONDITIONS A AND D ON BACK OF THIS FORM)

TANK(S) DESCRIPTION: (ATTACH ADDITIONAL LIST IF NECESSARY.)

TANK NO.	MATERIAL	AGE (YEARS)	CAPACITY (GAL)	MATERIALS STORED (PAST AND PRESENT)
1	Gasoline Service Tank	20	500	Gasoline
2	Waste Oil Collection Tank	15	500 Approx.	Waste Oil, Fuel Oil & Water

HAS ANY UNAUTHORIZED DISCHARGE EVER OCCURRED AT THIS SITE?
HAVE STRUCTURAL REPAIRS EVER BEEN MADE ON THESE TANKS?
WILL NEW UNDERGROUND TANKS BE INSTALLED FOLLOWING CLOSURE?
WILL ANY WELLS, INCLUDING MONITORING WELLS, BE ABANDONED?

YES NO
☐ ☒
☐ ☒
☐ ☒
☐ ☒

IF THE RESPONSE TO ANY OF THE ABOVE QUESTIONS IS YES, ATTACH EXPLANATION.

BY SIGNATURE BELOW THE APPLICANT CERTIFIES THAT HE/SHE HAS READ AND UNDERSTANDS THE CONDITIONS ON THE REVERSE SIDE OF THIS FORM AND THAT THE STATEMENTS AND DISCLOSURES ABOVE ARE TRUE AND CORRECT.

APPLICANT'S SIGNATURE Burl Freeman DATE 11-9-84
OWNER ☒ OPERATOR ☐ CONTRACTOR
STATE LICENSE NO. _____

TO BE COMPLETED BY THE COUNTY ENGINEER

BY SIGNATURE BELOW APPLICANT IS GRANTED APPROVAL TO PROCEED WITH THE CLOSURE.

FEE COLLECTED \$ 76.00
PERMIT NO 00252
FILE NO 00070 RTC 22

Nicholas A. Robinson DATE 11/13/84
TO ARRANGE FOR AN INSPECTION, TELEPHONE (213) 534-4862 (8:00-4:30 PM)

APPENDIX H

LENGTHS OF PIPE COVERED WITH ASBESTOS

PROCESS AREA

<u>Pipe Diameter (inches)</u>	<u>Length (feet)</u>
1	1,350
1.5	430
2	1,040
3	1,470
4	1,650
6	840
8	200
10	260
12	10
Subtotal	7,250

BOILER AREA

<u>Pipe Diameter (inches)</u>	<u>Length (feet)</u>
1	240
1.5	140
2	680
3	290
4	315
6	475
8	55
10	160
12	10
Subtotal	2,365

LARGE TANK FARM

<u>Pipe Diameter (inches)</u>	<u>Length (feet)</u>
1	300
1.5	70
2	1,210
3	1,360
Subtotal	2,940

Total for the Golden Eagle Refinery 12,550

ASBESTOS COVERED EQUIPMENT

PROCESS AREA

<u>Type of Equipment</u>	<u>Number of Pieces</u>
Towers	10
Heat Exchangers	11
Drums	1

BOILER AREA

<u>Type of Equipment</u>	<u>Number of Pieces</u>
Drums	3
Exhaust Stacks (Partial Insulation)	2

LARGE TANK FARM

<u>Type of Equipment</u>	<u>Number of Pieces</u>
Tanks	2

SMALL TANK FARM

<u>Type of Equipment</u>	<u>Number of Pieces</u>
Heat Exchangers	1

EQUIPMENT CONTAINING PCB's

BOILER AREA

2 transformers

LARGE TANK FARM

1 transformer

LOCATIONS OF OIL SLUDGES

BOILER AREA

1 API-type Wastewater Separator

LARGE TANK FARM

Any tank bottom wastes remaining

AREA LEAD RESIDUE

Any lead residue in the former lead tank shed